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Baseline Human Health Risk Assessment

Peterson Puritan Site – Operable Unit 2
Cumberland and Lincoln, Rhode Island

June 2007
Revised November 2007
Revised September 2008
Updated April 2009

SDMS DocID 488188

STATEMENT OF LIMITATIONS

This Baseline Human Health Risk Assessment (BHHRA) for the Peterson Puritan Superfund Site - Operable Unit 2 in Cumberland and Lincoln, Rhode Island (dated April 2009) is a revision of the version prepared by Arcadis in September 2008, for the PRP Group under the requirements of the Administrative Order by Consent (AOC), U.S. EPA Docket No.1-87-1064, May 29, 1987; as amended. The revisions, which were made by the United States Environmental Protection Agency (EPA) with assistance from its oversight contractor, AECOM (formerly M&E|AECOM), consist of updating the document by incorporating current risk assessment guidance.

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Acronyms

ADAF	age-dependent adjustment factor
ALM	Adult Lead Model
ANOVA	Analysis of Variance
AOV	One-Way Analysis of Variance
BBL	Blasland, Bouck & Lee, Inc.
bgs	below ground surface
cm^2	square centimeters
COPC	constituent of potential concern
CTE	Central Tendency Exposure
EPC	exposure point concentration
ft^3/min	cubic feet per minute
HHRA	baseline human health risk assessment
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
KM	Kaplan Meier
m^3/hr	cubic meters per hour
m^3/sec	cubic meters per second
MassDEP	Massachusetts Department of Environmental Protection

MassDOH	Massachusetts Department of Health
MCL	Maximum Contaminant Level
µg/L	micrograms per liter
mg/cm^2	milligrams per square centimeters
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
mg/kg-day	milligrams per kilogram of body weight per day
NCDC	National Climatic Data Center
OU2	Operable Unit 2
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
ppb	parts per billion
Q-Q	Quantile-Quantile
RfD	reference dose
RI	remedial investigation
RIDEM	Rhode Island Department of Environmental Management
RIDOH	Rhode Island Department of Health
RME	Reasonable Maximum Exposure
SF	slope factor

Shield	Shield Environmental Associates, Inc.
STSC	Superfund Technical Support Center
SVOC	semivolatile organic compound
TIC	tentatively identified compound
UCL	Upper Confidence Level
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compound

6. Baseline Human Health Risk Assessment

6.1 Introduction

6.1.1 Purpose and Scope

This baseline human health risk assessment (HHRA) evaluates potential human health risks associated with the Peterson Puritan Operable Unit 2 (OU2) Superfund Site located in Cumberland and Lincoln, Rhode Island (site). As previously mentioned in this *Remedial Investigation Report* (RI Report), the site consists of several general subareas, including the J.M. Mills Landfill; debris fields (upstream of the J.M. Mills Landfill); Quinnville Wellfield; Unnamed Island; Wetlands A, B, C, and D; and the Nunes Parcel. This HHRA was conducted pursuant to the Statement of Work under the Administrative Order by Consent and is based on the results of the RI completed at the site. The goal of this HHRA is to evaluate potential human health risks posed by site-related constituents in environmental media from OU2 and to support any remedial action decision needed to address those risks.

This HHRA has been conducted in accordance with the United States Environmental Protection Agency (USEPA) guidance (USEPA, 1989; 1991; 1997a; and 2001), and involves the following four steps: 1) data evaluation, to identify site-related chemicals of interest; 2) exposure assessment, to determine potential exposure pathways and quantify the magnitude of potential exposure; 3) toxicity assessment, to determine types of effects associated with exposures; and 4) risk characterization, to quantify cancer risks and non-cancer health hazards associated with specific exposures at OU2. This HHRA is presented in the format outlined in the USEPA guidance entitled *Risk Assessment Guidance for Superfund Volume I – Human Health Evaluation Manual, Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments* (USEPA, 2001). Per the USEPA's request, interim deliverables (i.e., individual Risk Assessment Guidance for Superfund Part D tables) were submitted throughout the HHRA process, and USEPA comments were subsequently addressed in this HHRA, as appropriate.

The HHRA evaluation steps are discussed in Sections 6.2 through 6.5. An uncertainty analysis is presented in Section 6.6. Summary and conclusions of this HHRA are presented in Section 6.7. Finally, Section 7 lists the references cited in this HHRA.

6.1.2 Land Use

The site is located in the towns of Cumberland and Lincoln, Rhode Island (see Figure 1-1) along the banks of the Blackstone River, beginning at approximately 1 mile below the Ashton Dam and ending at the Pratt Dam. OU2 includes the land formerly owned and operated as a landfill by Mr. Joseph Marzalkowski and his agent(s)/associate(s) for the purposes of waste transfer and disposal. Specifically, the site is defined in the *Statement of Work for the Remedial Investigation and Feasibility Study for the Peterson Puritan, Inc. Superfund Site, Operable Unit 2: J.M. Mills Landfill* (USEPA, 2000) as including the following areas:

- The J.M. Mills Landfill area, encompassed by the fence line erected by the USEPA to restrict access to the landfill in 1992.
- The associated debris fields, staging areas, and suspected disposal trenches along the bank of the Blackstone River.
- The gravel/paved access roads in the immediate vicinity of the J.M. Mills Landfill.
- The solid waste transfer station property (now or formerly owned by Nunes Disposal, Inc.), the railroad easement, Pratt Dam, the associated river channel(s) and Unnamed Island within the river, the adjacent wetlands, the former Lenox Street municipal well, and the former Quinnville Wellfield.

Land use within OU2 consists of recreational (e.g., Unnamed Island, Pond F, bikeway, river bank) and light industrial/commercial (e.g., Nunes Parcel, landfill, railroad right-of-way). There is no current potable use of groundwater, either on site or off site (the nearest well field is approximately 4 miles upstream of the site). According to the *Ashton-Pratt Redevelopment Plan* for Cumberland and Lincoln, Rhode Island (Crossman Engineering, Inc., 2004), the following land uses are present in the vicinity of the site:

- Interstate 295 Interchange – Predominately commercial
- Route 116 (George Washington Highway) – Primarily office, public facilities, and light industrial uses

- Mendon Road (Route 122) – Mix of residential, office, commercial, retail, and mixed commercial/residential
- Martin Street – Industrial with interspersed recreational facilities
- Lonsdale Mill Complex – Mixed commercial and light industrial
- Route 126 (Old River Road) – Residential

The *Ashton-Pratt Redevelopment Plan* indicates that redevelopment would consist of enhancing recreational uses of the area, maximizing river and canal access, improving transportation facilities and traffic, and overall improvement of aesthetics. According to the *Cumberland Comprehensive Plan* (Cumberland Planning Board, 2004), developed land within the Town of Cumberland is primarily residential (27 percent), with commercial, industrial, institutional, and transport and utilities comprising approximately 2 percent of the total developed land use. Recreational land use constitutes a little less than 1 percent of total land use (Cumberland Town Council, 2004). According to the *Lincoln Comprehensive Plan* (Lincoln Planning Board, 2003), approximately 55 percent of the Town of Lincoln is zoned as residential, and 15 percent as industrial/commercial, with the remaining land classified as other (e.g., utilities) and vacant (undeveloped).

Table 1 (presented in Appendix S) presents the exposure pathways evaluated in this HHRA for OU2.

For some areas of the site where sufficient subsurface soil sampling did not take place due to the presence of buried waste (i.e., J.M. Mills Landfill and the Nunes Parcel), a presumptive remedy approach will be applied in lieu of the quantification of potential risks and hazards associated with subsurface soils in contact with buried waste. The presumptive remedy approach acknowledges that risks from exposure to buried waste may exist and that appropriate remedial actions will be addressed for these subareas and subsurface media in the feasibility study. Because subsurface soils data primarily from outside the limits of the buried waste areas are available for the Nunes Parcel, potential subsurface soil risks and hazards for areas where buried waste is not present are quantified for this subarea. However, the presumptive remedy approach applies to the areas of buried waste at the Nunes Parcel, since the existing soil data set is unlikely to be representative of the nature and extent of impacts to soils from the buried waste.

Since the presumptive remedy approach was initially considered appropriate for the Unnamed Island, soil data were not collected to characterize the impacts of the buried waste on soil quality and to evaluate the risks associated with future soil exposure pathways. However, more recently, complications associated with application of the presumptive remedy to areas of buried and surficial waste on the Unnamed Island have been recognized. The complications, both technical and regulatory, arise primarily from the island's location within the floodway of the Blackstone River, which results in its complete inundation during flood events. Therefore, since the presumptive remedy may not be applicable, supplemental soil sampling will be performed for the Unnamed Island in order to determine the need to perform remedial actions at this subarea. Risk and hazard estimation cannot be included in this HHRA for the Unnamed Island due to the inadequacy of the soil database for this area. Once supplemental soil data have been collected, a comprehensive risk evaluation for exposures to soil, leachate, sediment, and surface water will be performed for the Unnamed Island. Groundwater data collected from the Unnamed Island have been used in the site-wide groundwater evaluation included in this HHRA.

6.2 Data Evaluation

This section briefly describes the datasets used to derive exposure point concentrations (EPCs) and how constituents of potential concern (COPCs) were identified.

6.2.1 Analytical Data

The analytical data evaluated in this HHRA were those collected during the RI. Only validated data were used in the HHRA. Results without data qualifiers, plus those values with J, JEB, JTB, EB, and TB qualifiers, were treated as detected concentrations at the reported/estimated concentrations. Values qualified with U and UJ were treated as non-detects. Values with R qualifiers, indicating the result was rejected during data validation, were not used in the HHRA.

Surface soil samples were collected from several areas of the site, including the J.M. Mills Landfill, Quinnville Wellfield, north of the railroad tracks that traverse the site (south of Wetlands A through D), Nunes Parcel, the debris fields upstream of the J.M. Mills Landfill, and along the southern bank of the Blackstone River (referred to as the Southern Bank, Lincoln side), as well as several background locations downstream of Ashton Dam. Subsurface soil samples were collected from the Nunes Parcel. Groundwater data were collected from the J.M. Mills Landfill, Quinnville Wellfield,

Unnamed Island, and Nunes Parcel, as well as several background/upgradient locations. Surface water and sediment samples were collected from the Blackstone River; Wetlands A through D; and Ponds C and F. Sediment samples were also collected from Pond B located adjacent to the J.M. Mills Landfill. Background surface water and sediment samples were collected from the Blackstone River near Ashton Dam. Biota (fish) samples were collected from upstream areas of the Blackstone River (BR-1 and BR-2), the portion of the Blackstone River within OU2 (BR-3 and Ponds A and F), and a background location (P-6). Figure 1-3 and Figures 2-1 through 2-7 in the RI Report show the location of the site features of interest and the sampling locations. Soil, sediment, and surface water data collected from the Unnamed Island will be evaluated as part of a supplemental risk evaluation, once supplemental soil data collection has been completed.

Background data were not used to eliminate COPCs in the screening process, but are presented in the RAGS D Table 2 series (Appendix S) for completeness. Consistent with the USEPA (2002a) guidance, background concentrations are considered in the risk characterization section of this HHRA, as necessary, to place site-related risks in proper perspective.

Tentatively identified compounds (TICs) were summarized and evaluated by Blasland, Bouck & Lee, Inc. (BBL) in April 2005. Please refer to the RI Report (Section 6.2.1) for additional information on TICs.

6.2.2 Constituents of Potential Concern

The COPC screening conducted as part of this HHRA used USEPA-recommended screening criteria, which were compared to maximum detected concentrations in site media. To be conservative, COPC screening was conducted by combining sitewide analytical data for each medium, with the exception of environmental samples collected from the Nunes Parcel and the wetland areas, which were evaluated separately.

The screening criteria used to identify COPCs for environmental media (i.e., soil, sediment, groundwater, leachate, surface water, outdoor air, indoor air, and fish) are listed below. Details on COPC screening methodology are briefly discussed in the following subsections.

- Soil – USEPA (2008) Screening Levels for residential soil
- Groundwater – USEPA (2008) Screening Levels for tap water

- Leachate – USEPA (2008) Screening Levels for tap water
- Sediment – USEPA (2008) Screening Levels for residential soil
- Surface Water – USEPA (2008) Screening Levels for tap water
- Ambient Air – USEPA (2008) Screening Levels for residential air
- Indoor Air – USEPA (2008) Screening Levels for residential air and USEPA (2002b) Generic Screening Levels for the Vapor Intrusion Pathway
- Fish – USEPA (2008) Screening Levels for fish

6.2.2.1 Soil

Prior to selecting COPCs, soils data were divided into surface (0 to 1 foot below ground surface [bgs]) and subsurface (greater than 1 foot bgs) data sets. (It should be noted that the Rhode Island Department of Environmental Management's [RIDEM's] definitions of surface soil [0 to 2 feet bgs] and subsurface soil [greater than 2 feet bgs] differ from USEPA Region 1's definitions of surface soil [0 to 1 foot bgs] and subsurface soil [from 1 foot bgs to up to 10 feet bgs or the water table].) The impact of these differences in regulatory definitions of soil intervals on site cleanup decisions will be addressed in the Feasibility Study.

Duplicate soil samples were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Soil COPCs for direct contact exposures (i.e., incidental ingestion and dermal contact) were identified by comparing maximum detected soil concentrations to the USEPA (2008) Screening Levels for residential soil. Screening levels for non-carcinogens were adjusted to reflect a target hazard quotient (HQ) of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact soil pathway. Site-wide surface soil COPCs for this pathway are presented in Table 2.1 (Appendix S). For the purposes of selecting site-wide surface soil COPCs, existing Unnamed Island surface soil data were included in the site-wide surface soil data set. Surface and subsurface soil COPCs for the direct contact soil pathway for the Nunes Parcel are presented in Tables 2.3 and 2.4 (Appendix S), respectively. Surface soil COPCs for the direct contact soil pathway for the wetland areas are presented in Table 2.11 (Appendix S).

6.2.2.2 Groundwater

Site-wide groundwater COPCs for direct contact exposures (i.e., ingestion, dermal contact and inhalation during household water usage) were identified by comparing maximum detected groundwater concentrations to the USEPA (2008) Screening Levels for tap water. Groundwater samples were treated as discrete samples. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact groundwater pathway. Site-wide groundwater COPCs for this pathway are presented in Table 2.7 (Appendix S).

6.2.2.3 Leachate

As requested by the USEPA, surrogate groundwater samples were used to quantitatively evaluate the leachate pathway for the J.M. Mills Landfill. The surrogate groundwater samples used to evaluate the leachate pathway are presented in Appendix W (Sample Groupings). Groundwater samples were treated as discrete samples. To identify leachate COPCs for direct contact exposure (i.e., dermal contact), maximum detected concentrations from the grab water samples were compared to the USEPA (2008) Screening Levels for tap water. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact leachate pathway. Leachate COPCs for this pathway are presented in Table 2.10 (Appendix S).

6.2.2.4 Sediment

Sediment COPCs for direct contact exposures (i.e., incidental ingestion and dermal contact) were identified by comparing maximum detected sediment concentrations in the Blackstone River and site ponds to the USEPA (2008) Screening Levels for residential soil. (Note: Because there is no human health, risk-based screening criteria for sediment, sediment data were compared to the USEPA [2008] Screening Levels for residential soil per the USEPA's request.) Data for duplicate sediment samples were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact sediment pathway. Site-wide sediment COPCs for this pathway are presented in Table 2.5 (Appendix S). For the purposes of selecting site-wide sediment

COPCs, Unnamed Island sediment data were included in the site-wide sediment data set. Sediment COPCs for the wetlands areas are presented in Table 2.12 (Appendix S).

6.2.2.5 Surface Water

Surface water COPCs for incidental ingestion and dermal contact were identified by comparing maximum detected surface water concentrations in the Blackstone River and site ponds to the USEPA (2008) Screening Levels for tap water. (Note: Because there is no human health, risk-based screening criteria for surface water, surface water data were compared to the USEPA [2008] Screening Levels for tap water per the USEPA's request.) Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact surface water pathway. Duplicate surface water sample data were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Both dissolved and total metals surface water data were used in the COPC screening process, but consistent with the USEPA (1989) guidance, only total metals surface water data were used to evaluate the surface water pathway (i.e., dissolved metals data were not used in the quantification of potential risks and hazards). Site-wide surface water COPCs for this pathway are presented in Table 2.6 (Appendix S). For the purposes of selecting site-wide surface water COPCs, existing Unnamed Island surface water data were included in the site-wide surface water data set. Surface water COPCs for the wetlands areas are presented in Table 2.13 (Appendix S).

6.2.2.6 Ambient Air (J.M. Mills Landfill)

As requested by the USEPA, air vent data from the J.M. Mills Landfill were used to identify COPCs for the ambient air pathway for the J.M. Mills Landfill (i.e., exposure of trespassers, site workers, and recreational users), although the use of air vent data is extremely conservative. Duplicate air vent samples were treated as discrete samples in the COPC screening process. While these data would not reflect chemical concentrations in the surrounding air, maximum detected concentrations of air vent constituents were compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for ambient air per the USEPA's request. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded screening levels were selected as COPCs for the ambient air pathway at the J.M. Mills Landfill and are presented in Table 2.2 (Appendix S).

To quantitatively evaluate potential risks/hazards for exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill, potential ambient air concentrations were estimated using the USEPA SCREEN3 model and the air vent data; this modeling is discussed in Section 6.3.2.3.3.

6.2.2.7 Outdoor Air (Trench Scenario)

To evaluate potential outdoor air exposures for intrusive (construction) workers under a trenching scenario, groundwater and soils data from the Nunes Parcel were used to estimate potential trench air concentrations resulting from vapor intrusion. Surface and subsurface soil and groundwater data were used in the Johnson & Ettinger (USEPA, 2004b) model to estimate potential trench concentrations; these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for this pathway. Specifically, maximum detected concentrations in soil and groundwater were used in the Johnson & Ettinger (USEPA, 2004b) slab-on-grade model to estimate possible indoor air concentrations (Cbuilding). The Cbuilding concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for trench air. Outdoor (trench) air COPCs for the Nunes Parcel are presented in Tables 2.15 and 2.17 (Appendix S), respectively. Outputs from the Johnson & Ettinger advanced soil (SL-ADV) and groundwater (GW-ADV) models for outdoor (trench) air are presented as Appendix T to this RI Report. To model trench air (Cbuilding) using the Johnson & Ettinger model, default parameters were used, except for the following assumptions: groundwater was assumed to be approximately 13 feet bgs, the trench was assumed to measure 3 feet wide by 8 feet long by 8 feet high, the soil type was assumed to be sandy, and the air exchange rate (2 per hour) represents that for a trench scenario derived from the Virginia Department of Environmental Quality (VDEQ) (2007).

To identify outdoor (trench) air COPCs for the Quinnville Wellfield, groundwater data were compared to the USEPA (2002b) target groundwater concentrations at a risk level of 1×10^{-6} from the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*. For those constituents that presented USEPA Maximum Contaminant Levels (MCLs) as screening levels, risk-based levels reflecting a 1×10^{-6} target were derived by EPA Region I. Screening levels based on non-cancer endpoints were adjusted to reflect an HQ of 0.1. COPCs for this pathway are presented in Table 2.18 (Appendix S). As shown in Table 2.18, naphthalene was the only sufficiently volatile and toxic constituent detected in the Quinnville Wellfield groundwater, although it's maximum concentration was below its associated screening criterion. No screening was performed for Quinnville Wellfield soils because, as

indicated in the USEPA's October 31, 2006 comments on the Table 2s, "[u]se of the groundwater screening criteria from the draft Vapor Intrusion Guidance (USEPA, 2002; Table 2c) to select COPCs for the Johnson & Ettinger modeling is appropriate for the evaluation to be performed at the Quinnville Wellfield area, where volatile compounds in soil are negligible." Therefore, only groundwater data were used in the HHRA to evaluate the future outdoor (trench) air pathway for the Quinnville Wellfield. For naphthalene, the modeled air concentration was less than the screening level, and therefore, no COPCs were identified for this pathway.

COPC screening for the Southern Bank was limited to surface soils because no groundwater data were collected from the Southern Bank. As shown in Table 2.19 (Appendix S), methyl acetate and toluene were the only volatile organic compounds (VOCs) detected in Southern Bank soils. Similar to the methodology used for the Nunes Parcel outdoor air evaluation, maximum soil concentrations were used in the Johnson & Ettinger model to estimate possible indoor air concentrations (Cbuilding) (see Appendix T for model outputs); these values were then compared to the USEPA (2008) Screening Levels for residential air (see Table 2.19). For both methyl acetate and toluene, modeled air concentrations were less than the screening level, and therefore, no COPCs were identified for this pathway.

6.2.2.8 Indoor Air

With respect to the vapor intrusion to indoor air pathway for the Nunes Parcel and Quinnville Wellfield, potential indoor air concentrations of VOCs and semivolatile organic compounds (SVOCs) resulting from migration from surface and subsurface soil and groundwater were estimated using the Johnson & Ettinger (USEPA, 2004b) model. Specifically, maximum detected soil and groundwater concentrations of VOCs and SVOCs were used to model potential indoor air concentrations (Cbuilding); these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for the indoor air pathway.

Specifically, COPCs for the vapor intrusion to indoor air pathway for the Quinnville Wellfield were identified by comparing maximum groundwater concentrations in Quinnville Wellfield samples to target groundwater concentrations for a risk level of 1×10^{-6} from the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (USEPA, 2002b). For those constituents listing MCLs as screening levels, risk-based screening levels reflecting a 1×10^{-6} target were derived by EPA Region I. Screening levels based on non-cancer endpoints were adjusted to reflect an HQ of 0.1. COPCs for this pathway are presented in Table 2.8 (Appendix S).

As shown in Table 2.8, naphthalene was the only sufficiently volatile and toxic constituent detected in Quinnville Wellfield groundwater [bis(2-ethylhexyl)phthalate was also detected, but is not sufficiently volatile or toxic], and its maximum concentration was below its associated screening criterion. No screening was performed for Quinnville Wellfield soils because, as indicated in the USEPA's October 31, 2006 comments on the Table 2s, "[u]se of the groundwater screening criteria from the draft Vapor Intrusion Guidance (USEPA, 2002; Table 2c) to select COPCs for the Johnson & Ettinger modeling is appropriate for the evaluation to be performed at the Quinnville Wellfield area, where volatile compounds in soil are negligible." Therefore, only groundwater data were used in the HHRA to evaluate the future indoor air pathway for Quinnville Wellfield.

With respect to the vapor intrusion to indoor air pathway for the Nunes Parcel, potential indoor air concentrations resulting from migration of VOCs and SVOCs from surface and subsurface soils and groundwater were estimated using the Johnson & Ettinger model. Specifically, maximum detected soil and groundwater concentrations of VOCs and SVOCs in Nunes Parcel samples were used to model potential indoor air concentrations (Cbuilding); these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for the indoor air pathway. Specifically, the Johnson & Ettinger basement model was used with standard residential defaults (as requested by the USEPA) to evaluate the indoor air pathway for the Nunes Parcel; the only assumption in the model was a sandy soil type. Soil and groundwater COPCs for this pathway are presented in Tables 2.14 and 2.16 (Appendix S), respectively. Outputs from the Johnson & Ettinger advanced soil (SL-ADV) and groundwater (GW-ADV) models for indoor air are presented as Appendix T to this RI Report.

6.2.2.9 Fish

Fish fillet samples of largemouth bass, white sucker, bluegill, and pumpkinseed were collected and data were used to evaluate potential human exposures. Fillet samples were intended to represent portions of edible-size fish that could be consumed by local anglers.

Fish tissue COPCs were identified by comparing maximum detected fish tissue concentrations to the USEPA (2008) Screening Levels for fish tissue. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the fish ingestion

pathway. Site-wide fish tissue COPCs for this pathway are presented in Table 2.9 (Appendix S).

6.2.3 Exposure Point Concentrations

EPCs (e.g., 95 percent Upper Confidence Levels [UCLs]) were derived from existing site data using the USEPA ProUCL Software (Version 4.0-Beta and Version 4.00.02) as requested by the USEPA. ProUCL statistical software was used to calculate the UCL of the unknown population arithmetic mean (USEPA, 2006). The EPCs used in the draft HHRA (September 2008) were generated utilizing ProUCL v4.0-Beta, as the latest version (ProUCL v4.00.02) was not available at the time the EPC calculations were performed. Any EPCs generated after the September 2008 date were developed utilizing ProUCL v4.00.02. The differences between the two ProUCL v4.0 versions are minor, making the effect of using the Beta version on the risk results minimal. The rationale for calculating the UCL term followed the procedures outlined in the ProUCL's User's Guide. Each data set was tested for normality using the Shapiro-Wilk W Test statistic with accompanying Quantile-Quantile (Q-Q) plots. Each data set was also tested for the gamma distribution using the Anderson-Darling and Kolmogorov-Smirnov Empirical Distribution Functions test statistics with accompanying Q-Q plots.

Based on the distribution of the data set, a recommended UCL calculation procedure was followed. In instances where the recommended UCL exceeded the maximum detected concentration, a lower percentage UCL (not less than 95 percent) was used as the EPC consistent with USEPA (2007) guidance. The UCL computation for data sets without any non-detects follows the recommendations in the ProUCL (USEPA, 2006) User's Guide.

For data sets with non-detect observations occurring at multiple detection limits, the Kaplan Meier (KM) estimate method was used. The KM estimate method adjusts for censoring by calculating an estimate of standard error of the mean, which then can be used to calculate a UCL for various methods (e.g., normal approximations, percentile bootstrap, Chebyshev inequality) (USEPA, 2006).

Per the USEPA's request, the same EPCs were used for both the Reasonable Maximum Exposure (RME) and Central Tendency Exposure (CTE) scenarios. If ProUCL recommended a UCL that exceeded the maximum detected concentration, a lower percentile UCL or the maximum detected concentration was selected as the EPC. Maximum detected concentrations were also used as EPCs when the sample size was less than 8. In instances where the maximum detected concentration was

used as the EPC for the RME scenario, the arithmetic mean was then used as the EPC for the CTE scenario. Groundwater EPCs were developed consistent with the USEPA Region 1 guidance in that the RME EPCs represent the maximum detected concentrations, and the CTE EPCs represent the arithmetic mean.

Media- and receptor-specific EPCs are presented in Tables 3.1 through 3.29 (Appendix S). As requested by the USEPA, a subset of ProUCL outputs is provided as Appendix V to this RI Report. Sample groupings that were used to calculate EPCs are provided as Appendix W to this RI Report.

6.3 Exposure Assessment

The exposure assessment identifies potential pathways of human exposure to site-related constituents and estimates the magnitude of that exposure.

6.3.1 Exposure Pathways

The exposure pathways quantitatively evaluated in the HHRA are discussed below for each medium; Table 1 (Selection for Exposure Pathways) (Appendix S) presents a summary of these pathways. In addition to those exposure pathways identified in Table 1, the site also presents other physical hazards, such as asbestos, metal debris, tires, dilapidated buildings, and broken glass. Although these materials are not quantitatively evaluated in this HHRA, potential direct contact exposure of receptors to these materials may also be associated with some risks. Asbestos, in particular, may present significant health risks due to its status as a Class A (known human) carcinogen if fibers are released into the air and inhaled. These physical hazards will be further considered in the Feasibility Study.

6.3.1.1 Surface Soil

Surface soil represents a potentially complete sitewide exposure pathway for adolescent (ages 9 through 18) trespassers, recreational users (adults and older children 6 through 12 years of age), and commercial workers. Under a future use scenario, construction workers and residents may also be exposed to surface soil. Specifically, trespassers and recreational users may be exposed to surface soils within the J.M. Mills Landfill, Quinnville Wellfield, along the southern bank of the Blackstone River (Lincoln side), upstream of the J.M. Mills Landfill (debris fields), and/or within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). These receptors may also be exposed to surface soils within the Nunes Parcel. Commercial

workers may be exposed to surface soils within the Nunes Parcel and the Quinnville Wellfield. Construction workers may be exposed to soil at the Nunes Parcel, Quinnville Wellfield and Southern Bank areas, while residential exposures are only feasible at the Nunes Parcel. Potential exposure routes that were quantitatively evaluated as part of the HHRA are incidental ingestion and dermal contact. Inhalation of fugitive dust is likely insignificant due to lack of intrusive activities and dust generation except for the construction worker (see Table 1 [Appendix S]).

Current scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of trespassers to surface soils within the J.M. Mills Landfill, debris fields, Nunes Parcel, wetlands, and the Quinnville Wellfield
- exposure of recreational users (adults and older children) to surface soils along the Southern Bank
- exposure of commercial workers to surface soils within the Nunes Parcel and Quinnville Wellfield

Future scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of recreational users (adults and older children) to surface soils within the J.M. Mills Landfill, Southern Bank, Nunes Parcel, wetlands, and Quinnville Wellfield
- exposure of commercial workers to surface soils within the Nunes Parcel and Quinnville Wellfield
- exposure of construction workers to surface soils within the Nunes Parcel, Quinnville Wellfield and Southern Bank
- exposure of construction workers to fugitive dust within the Nunes Parcel, Quinnville Wellfield, and Southern Bank
- exposure of residents to surface soils within the Nunes Parcel

6.3.1.2 Subsurface Soil

Subsurface soil within the Nunes Parcel represents a potentially complete future exposure pathway for recreational users, residents and commercial workers via incidental ingestion and dermal contact, and for construction workers via incidental ingestion, dermal contact, and inhalation of fugitive dust.

Future scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of construction workers to subsurface soils, including fugitive dust, within the Nunes Parcel
- exposure of future commercial workers to subsurface soils within the Nunes Parcel
- exposure of future recreational users (adults and older children) to subsurface soils within the Nunes Parcel
- exposure of future hypothetical residents (adults and young children) to subsurface soils within the Nunes Parcel

Subsurface soil data from the buried waste areas were not collected to fully characterize the nature and extent of subsurface impacts for the Nunes Parcel due to the presumed risk caused by the buried waste in this area, similar to the approach taken at the J.M. Mills Landfill under the USEPA's presumptive remedy approach for municipal landfills.

6.3.1.3 Sediment

Sediment represents a potentially complete exposure pathway for adolescent (ages 9 through 18) trespassers and recreational users (adults and older children 6 through 12 years). Specifically, trespassers and recreational users may be exposed to sediments within the Blackstone River, site ponds (i.e., Ponds B, C and F), and within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). Potential exposure routes quantitatively evaluated as part of this HHRA are incidental ingestion and dermal contact representative of a wading scenario.

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to sediments in the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)

- exposure of recreational users (adults and older children) to sediments along the Southern Bank

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to sediments within the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of the J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)

6.3.1.4 Surface Water

Surface water represents a potentially complete sitewide exposure pathway for adolescent (ages 9 through 18) trespassers and recreational users (adults and older children 6 through 12 years). Specifically, trespassers and recreational users may be exposed to surface water within the Blackstone River, site ponds (i.e., Ponds C and F), and within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). Potential exposure routes that were quantitatively evaluated as part of this HHRA are dermal contact for a wading scenario and incidental ingestion and dermal contact for a swimming scenario.

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to surface water in the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), and within the wetland areas north of the J.M. Mills Landfill

- exposure of recreational users (adults and older children) to surface water along the Southern Bank

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to surface water within the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of the J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)

6.3.1.5 Groundwater

Groundwater represents a potentially complete future exposure pathway for residents (adults and young children age 1 through 6 years) and construction workers. Although there is no current potable use of groundwater, there are no institutional controls in place at the site, with the exception of the Quinnville Wellfield that was included in the Record of Decision under Operable Unit 1 that would prohibit the future installation of potable wells. Therefore, at the request of the USEPA, potential residential risks/hazards were quantitatively evaluated for a hypothetical future potable use scenario. Potential exposure routes that were evaluated for the potable groundwater scenario were ingestion, dermal contact, and inhalation.

Construction workers may be exposed to shallow groundwater during intrusive activities. Potential exposure routes that were quantitatively evaluated for the construction worker are incidental ingestion and dermal contact.

6.3.1.6 Leachate

Potential exposures to leachate were quantitatively evaluated as part of this HHRA at the request of the USEPA. Specifically, leachate at the J.M. Mills Landfill was assumed to represent a potentially complete exposure pathway via dermal contact for adolescent (ages 9 through 18) trespassers. Because true leachate data are not available for the site, groundwater data collected near the toe of the J.M. Mills Landfill were used as a surrogate to evaluate this pathway. Exposure of trespassers to leachate was quantitatively evaluated under a current scenario, and exposure of recreational users (adults and older children) was quantitatively evaluated under a future scenario.

6.3.1.7 Ambient Air (J.M. Mills Landfill)

Ambient air at the J.M. Mills Landfill represents a potentially complete exposure pathway for the adolescent (ages 9 through 18) trespasser, recreational user, and site worker. Specifically, receptors may be exposed to COPCs that volatilize from soils

and/or groundwater to ambient air. Because there are no true ambient air samples from the J.M. Mills Landfill, air vent data were used to model potential ambient air concentrations across the J.M. Mills Landfill (see Section 3.2.3.3).

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to ambient air across the J.M. Mills Landfill
- exposure of site workers to ambient air across the J.M. Mills Landfill

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to ambient air across the J.M. Mills Landfill

6.3.1.8 Outdoor Air (Trench)

Outdoor air within an excavation trench represents a potentially complete future exposure pathway for the construction workers at the Nunes Parcel. Specifically, receptors may be exposed to COPCs that volatilize from soils and/or groundwater to ambient air within an excavation trench. Potential outdoor (trench) air concentrations (Cbuilding) were estimated using the Johnson & Ettinger model. These estimated air concentrations were used in the quantification of potential risks and hazards for the construction worker.

6.3.1.9 Fish Tissue

Fish consumption represents a potentially complete current and future exposure pathway for recreational users (adults and young children age 1 through 6 years). Specifically, recreational users may consume fish from the Blackstone River and site ponds. Consumption of fish by recreational users was evaluated separately for different stretches of the Blackstone River. Potential risks/hazards were quantified for the following areas:

- BR-1: The portion of the Blackstone River upstream of Ashton Dam.
- BR-2: The portion of the Blackstone River downstream of Ashton Dam, but upstream of OU2.

- OU2: The portion of the Blackstone River adjacent to OU2, including site ponds and waters upstream of Pratt Dam.

- P-6: Background ("reference") pond located north of the site.

6.3.1.10 Indoor Air

Indoor air at the Nunes Parcel represents a potentially complete exposure pathway for future commercial workers and residents. Specifically, if this area of the site was developed for commercial or residential use in the future, volatile COPCs in soils and/or groundwater could migrate into occupied buildings. Potential indoor air (Cbuilding) concentrations were estimated using the Johnson & Ettinger model. These estimated indoor air concentrations were used in the quantification of potential risks and hazards for the resident and commercial worker.

6.3.2 Exposure Factors

This HHRA used exposure factors that reflect conditions at the site consistent with current scientific and regulatory policy. While some exposure factors are USEPA default values, others are site-specific values that more accurately reflect exposures at the site. Per the USEPA's request, both the RME and CTE scenarios were evaluated in this HHRA. The RME scenario is intended to represent the "highest exposure that is reasonably expected to occur at a site" (USEPA, 1989), and the CTE scenario is intended to represent more realistic exposures. The exposure factors used for the receptors/pathways identified previously are presented in the Table 4 series (Appendix S) and are briefly discussed below for each medium (i.e., soil, groundwater, sediment, surface water, leachate, outdoor air, indoor air, and fish).

6.3.2.1 Reasonable Maximum Exposure

6.3.2.1.1 Soil

The RME scenario used USEPA (2002c) default values for soil ingestion (100 milligrams per day [mg/day] for the trespasser, recreational user, adult resident and commercial worker, 200 mg/day for the young child resident, and 330 mg/day for the construction worker). As requested by the USEPA, this HHRA used a soil ingestion rate of 330 mg/day for construction workers as recommended in the USEPA soil screening guidance (USEPA, 2002c). According to the USEPA (2002b), this high-end soil ingestion rate was chosen because construction workers "are likely to experience

substantial exposures to soils during excavation and other work activities…" The soil ingestion rate of 330 mg/day is based on a study by Stanek et al. (1997) and is the 95th percentile soil intake value for adults in that study.

The exposure frequencies used to quantitatively evaluate potential soil exposures for trespassers, recreational users, commercial workers, residents, and construction workers were recommended by the USEPA. For the trespasser and recreational user, it was assumed that these receptors visit the site 104 days per year, which assumes 4 days per week for approximately 6 months. Given the climate in Rhode Island and the relative size of each subarea compared to the entire site, these values are considered to be conservative. Residential exposures were assumed to occur 350 days per year for a total of 30 years (24 years as an adult, 6 years as a child). Construction workers were assumed to have more significant exposures to surface and subsurface soils, but for a shorter period of time. Given the types of intrusive activities that might occur at the site, it was assumed that a construction worker may be exposed to on-site soils for 125 days per year for 1 year (assumes that construction activities would occur during a single construction season). For the fugitive dust pathway, construction worker exposures were estimated using a particulate emission factor of 1.36 x 10^9 m^3/kg (USEPA, 2002c). Dust inhalation was assumed to occur 8 hours on each day of the construction activities (125 days per year for 1 year). It was assumed that commercial workers may be exposed to on-site soils 250 days per year for 25 years.

To evaluate dermal contact with on-site soils for commercial and construction workers, the USEPA (2002c and 2004a) default value for skin surface area was used (3,300 square centimeters [cm^2]; assumes hands, arms, and head). The USEPA (2002c and 2004a) default exposure factor for skin surface area for adults, based on residential exposures to soil, is 5,700 cm^2, which represents head, forearms, hands, and lower legs; this value was used for the adult recreational user and adult resident. The USEPA (2004a) default surface area for the young child resident is 2,800 cm^2. The surface area for the adolescent trespasser (SA = 5,900 cm^2) and older child recreational user (SA = 4,400 cm^2) represents the head, forearms, hands, lower legs, and feet. The USEPA (2002c and 2004a) default exposure factors for dermal adherence were used to evaluate potential soil exposures for commercial and construction workers (0.2 milligrams per square centimeters [mg/cm^2] and 0.3 mg/cm^2, respectively). The dermal adherence factor for the commercial worker is based on the 50th percentile for utility workers, and the dermal adherence factor for the construction worker is based on the 95th percentile for construction workers (USEPA, 2004a). The USEPA (2002c and 2004a) default exposure factors for dermal adherence for adults and children, based on residential exposures to soil, are 0.07 mg/cm^2 (based on the

50th percentile for gardeners) and 0.2 mg/cm^2 (based on the 50th percentile for children playing in wet soil), respectively; these values were used for the adolescent trespasser and adult recreational user and resident (0.07) and child recreational user and resident (0.2), respectively.

6.3.2.1.2 Groundwater

The exposure pathways evaluated in this HHRA included hypothetical future residential exposure to groundwater via ingestion, dermal contact, and inhalation; exposure of construction workers to shallow groundwater via incidental ingestion and dermal contact during intrusive activities; and exposure of construction workers to volatiles in ambient air originating from groundwater. Potential risks/hazards associated with residential groundwater exposure were quantitatively evaluated for both an adult and young child receptor. The USEPA (1989 and 2002c) default exposure parameters for adult ingestion rate (IR = 2 liters per day), exposure frequency (EF = 350 days per year), and exposure duration (adult ED = 24 years, child ED = 6 years) were used for residential exposures to groundwater. As requested by the USEPA, a conservative child ingestion rate of 1.5 liters per day, which represents the USEPA's (1997a) 90th percentile value for children less than 5 years of age, was used to quantify potential risks/hazards for the child receptor. (The USEPA [1989 and 2002c] default for a child drinking water ingestion rate is 1 liter per day.)

To evaluate dermal exposure of construction workers to shallow groundwater, a skin surface area of 2,100 cm^2 was used (assumes arms and hands). Similar to the evaluation of soil exposures, it was assumed that a construction worker may be exposed to shallow groundwater for 125 days per year for 1 year (assumes that construction activities would be of limited duration).

6.3.2.1.3 Sediment

The exposure pathways evaluated in this HHRA for sediment included current and future exposure of trespassers and recreational users to sediments within the Blackstone River and site ponds via incidental ingestion and dermal contact. The exposure parameters used for the trespasser and recreational user under a wading scenario were the same as those used to evaluate soil exposures, except for the EF and dermal adherence factor. An exposure frequency of 52 days per year was used, which equals 2 days per week for approximately 6 months. A dermal adherence factor of 0.3 was used to evaluate sediment exposures; this value represents the 95th percentile for children playing in moist soil (USEPA, 2004a).

6.3.2.1.4 Surface Water

The exposure pathways evaluated in this HHRA for surface water included current and future exposure of trespassers and recreational users to surface water within the Blackstone River and site ponds via dermal contact under a wading scenario. Also, exposure to surface water via incidental ingestion and dermal contact was evaluated under a swimming scenario. The exposure parameters used to quantitatively evaluate dermal surface-water exposures for the trespasser and recreational user under a wading scenario were the same as those used to evaluate sediment exposures. The skin surface areas used for the trespasser and recreational user (SA = 7,600 and 7,310 cm^2, respectively) wading scenario assume hands, feet, forearms, and lower legs.

Skin surface areas used for swimming scenarios are the USEPA (1997a and 2004a) defaults. Likewise, the incidental ingestion rate for the swimming scenario is the USEPA (1989) default rate (0.05 liters per hour). The exposure frequency for the RME swimming scenario is 32 days per year.

6.3.2.1.5 Leachate

The exposure pathways evaluated in this HHRA for leachate included current and future exposure of trespassers and recreational users to leachate at the J.M. Mills Landfill. Although no seeps were observed at the site by BBL personnel, this pathway was quantitatively evaluated at the request of the USEPA using surrogate groundwater data collected near the toe of the J.M. Mills Landfill. Receptors were assumed to be exposed via dermal contact, and the exposure parameters used in the quantification of potential risks/hazards for leachate were the same as those used for surface water, except for the skin surface area. Skin surface areas for the trespasser, adult recreational user, and older child recreational user assumed lower legs, feet, and hands (SA = 3,700, 4,500, and 2,700 cm^2, respectively). The RME exposure frequency was 52 days per year.

6.3.2.1.6 Outdoor Air (J.M. Mills Landfill)

This HHRA evaluated current and future exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill. The exposure parameters (i.e., exposure frequency and exposure duration) used to quantitatively evaluate potential outdoor air exposures were the same as those used to evaluate soil exposures. It was assumed that the trespasser and recreational user would be

exposed for 1 hour per day, while the site worker was assumed to be exposed for 8 hours per day. The RME exposure frequency was 104 days per year for the trespasser and recreational user and 150 days per year for the site worker. The site worker exposure duration under the RME scenario was 25 years.

6.3.2.1.7 Outdoor Air (Trench)

To evaluate potential future exposure of construction workers to ambient air within an excavation trench at the Nunes Parcel, trench concentrations (Cbuilding) were estimated using the Johnson & Ettinger model. Construction workers were assumed to be exposed for 8 hours per day for 125 days per year, which was consistent with the exposure frequency used to evaluate potential soil exposures.

6.3.2.1.8 Indoor Air

This HHRA evaluated future exposure of commercial workers and residents to indoor air at the Nunes Parcel. Commercial receptors were assumed to be exposed for 8 hours per day for 250 days per year, which is the USEPA (2002c) default exposure frequency for indoor workers under an RME scenario. Residential receptors were assumed to be exposed for 24 hours per day for 350 days per year, which are USEPA (1997a) defaults.

6.3.2.1.9 Fish

The exposure pathways evaluated in this HHRA for fish included consumption of edible-sized fish from the Blackstone River and site ponds by recreational users (adults and young child age 1 through 6 years). It was assumed that all fish species from all water bodies (i.e., river and ponds) were consumed at an equal rate. Per the USEPA's request, fish ingestion rates for the adult and young child were taken from Ebert and Harrington (1993). The RME adult fish ingestion rate used was 14 grams per day, and the child fish ingestion rate was 6.1 grams per day. The USEPA (1989) default residential values were used for the exposure frequencies and exposure durations.

6.3.2.1.10 Fraction Ingested from the Site

It was assumed that site media (e.g., soil, groundwater, sediment, surface water, fish) account for 100 percent of potential exposures. However, this value is conservative as it assumes that trespasser and recreational users only use site resources, and it does

not consider exposure of these receptors to other larger and potentially more attractive areas in the region.

6.3.2.2 Central Tendency Exposure

6.3.2.2.1 Soil

The CTE scenario used USEPA (2002c) default values for soil ingestion (50 mg/day for the trespasser, recreational user, adult resident, and commercial worker, 100 mg/day for the young child resident, and 330 mg/day for the construction worker). As requested by the USEPA, this HHRA used a soil ingestion rate of 330 mg/day for construction workers as recommended in the USEPA soil screening guidance (USEPA, 2002c). According to the USEPA (2002b), this high-end soil ingestion rate was chosen because construction workers "are likely to experience substantial exposures to soils during excavation and other work activities…" The soil ingestion rate of 330 mg/day is based on a study by Stanek et al. (1997) and is the 95th percentile soil intake value for adults in that study.

The exposure frequencies used to quantitatively evaluate potential soil exposures for trespassers, recreational users, commercial workers, residents, and construction workers were recommended by the USEPA. For the trespasser and recreational user, it was assumed that these receptors are visiting the site 52 days per year, which assumes 2 days per week for approximately 6 months. Given the climate in Rhode Island and the relative size of each subarea compared to the entire site, these values likely overstate exposure, and therefore, risks. Residential exposures were assumed to occur 350 days per year for a total of 13 years (7 years as an adult, 6 years as a child). Construction workers were assumed to have more significant exposures to surface and subsurface soils, but for a shorter period of time. Given the types of intrusive activities that might occur at the site, it was assumed that a construction worker may be exposed to on-site soils for 62 days per year for 1 year (assumes that construction activities would occur during a single construction season). For the fugitive dust pathway, construction worker exposures were estimated using a particulate emission factor of 1.36 x 10^9 m^3/kg (USEPA, 2002c). Dust inhalation was assumed to occur 8 hours on each day of the construction activities (62 days per year for 1 year). It was assumed that commercial workers may be exposed to on-site soils 219 days per year over the course of 9 years.

The exposure parameters (e.g., adherence factors, skin surface areas) used to evaluate dermal contact with on-site soils for trespassers, recreational users,

commercial workers, residents, and construction workers were the same as those used for the RME scenario.

6.3.2.2.2 Groundwater

The exposure pathways evaluated in this HHRA included hypothetical future residential exposure to groundwater via ingestion, dermal contact and inhalation, and exposure of construction workers to shallow groundwater via incidental ingestion and dermal contact during intrusive activities. However, it is assumed that institutional controls will eliminate any groundwater ingestion potential following site closure. Potential risks/hazards associated with residential groundwater exposure were quantitatively evaluated for both an adult and young child receptor. The drinking water ingestion rates (adult IR = 1.4 liters per day and child IR = 0.87 liters per day) used for the CTE scenario represent the 50th percentile value from the USEPA (1997a). Based on the USEPA (1994a) Region 1 guidance, a combined 9-year residential exposure duration was used for the CTE scenario (adult ED = 7 years, child ED = 2 years).

To evaluate dermal exposure of construction workers to shallow groundwater, a skin surface area value of 2,100 cm^2 was used. Similar to the evaluation of soil exposures, it was assumed that a construction worker may be exposed to shallow groundwater for 62 days per year for 1 year (assumes that construction activities would be of limited duration).

6.3.2.2.3 Sediment

The exposure pathways evaluated in this HHRA for sediment included current and future exposure of trespassers and recreational users to sediments within the Blackstone River and site ponds via incidental ingestion and dermal contact. The exposure parameters used to quantitatively evaluate sediment exposures for the trespasser and recreational user under a CTE wading scenario were the same as those used to evaluate soil exposures, except for the exposure frequency and dermal adherence factor. An exposure frequency of 26 days per year was used, which equals 2 days per week for approximately 3 months. A dermal adherence factor of 0.3 was used to evaluate sediment exposures; this value represents the 95th percentile for children playing in moist soil (USEPA, 2004a).

6.3.2.2.4 Surface Water

The exposure pathways evaluated in this HHRA for surface water included current and future exposure of trespassers and recreational users to surface water within the Blackstone River and site ponds via dermal contact under a wading scenario. Also, exposure to surface water via incidental ingestion and dermal contact was evaluated under a swimming scenario. The exposure parameters used to quantitatively evaluate dermal surface-water exposures for the trespasser and recreational user under a wading scenario were the same as those used to evaluate sediment exposures. The skin surface areas used for the trespasser and recreational user (SA = 7,600 and 7,310 cm^2, respectively) wading scenario assume hands, feet, forearms, and lower legs.

Skin surface areas used for swimming scenarios are the USEPA (1997a and 2004a) defaults. Likewise, the incidental ingestion rate for the swimming scenario was the USEPA (1989) default contact rate (0.05). The exposure frequency used for the CTE swimming scenario was 16 days per year.

6.3.2.2.5 Leachate

The exposure pathways evaluated in this HHRA for leachate included current and future exposure of trespassers and recreational users to leachate at the J.M. Mills Landfill. Although no seeps were observed at the site by BBL personnel, this pathway was quantitatively evaluated at the request of the USEPA using surrogate groundwater data collected near the toe of the J.M. Mills Landfill. Receptors were assumed to be exposed via dermal contact, and the exposure parameters used in the quantification of potential risks/hazards for leachate were the same as those used for surface water, except for the skin surface area. Skin surface areas for the trespasser, adult recreational user, and older child recreational user assumed lower legs, feet, and hands (SA = 3,700, 4,500, and 2,700 cm^2, respectively). The CTE exposure frequency was 26 days per year.

6.3.2.2.6 Outdoor Air (J.M. Mills Landfill)

This HHRA evaluated current and future exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill. The exposure parameters (i.e., exposure frequency and exposure duration) used to quantitatively evaluate potential outdoor air exposures were the same as those used to evaluate soil exposures. It was assumed that the trespasser and recreational user would be

exposed for 1 hour per day, while the site worker was assumed to be exposed for 8 hours per day. The CTE exposure frequency was 52 days per year for the trespasser and recreational user and 150 days per year for the site worker. The site worker exposure duration under the CTE scenario was 9 years.

6.3.2.2.7 Outdoor Air (Trench)

To evaluate potential future exposure of construction workers to ambient air within an excavation trench at the Nunes Parcel, trench concentrations were estimated using the Johnson & Ettinger model. Construction workers were assumed to be exposed for 8 hours per day for 62 days per year, which was consistent with the exposure frequency used to evaluate potential soil exposures.

6.3.2.2.8 Indoor Air

This HHRA evaluated future exposure of commercial workers and residents to indoor air at the Nunes Parcel. Commercial receptors were assumed to be exposed for 8 hours per day for 219 days per year under the CTE scenario. Residential receptors were assumed to be exposed for 16 hours per day for 350 days per year.

6.3.2.2.9 Fish

The exposure pathways evaluated in this HHRA for fish included consumption of fish from the Blackstone River and site ponds by recreational users (adults and young child age 1 through 6 years). It was assumed that all fish species from all water bodies (i.e., river and ponds) were consumed at an equal rate. Per the USEPA's request, fish ingestion rates for the adult and young child were taken from Ebert and Harrington (1993). The adult CTE fish ingestion rate used was 8.9 grams per day, and the child fish ingestion rate was 3.7 grams per day. The USEPA (1989) default residential values were used for the exposure frequencies and exposure durations.

6.3.2.2.10 Fraction Ingested from the Site

It was assumed that site media (e.g., soil, groundwater, sediment, surface water, fish) account for 100 percent of potential exposures. However, this value is conservative as it assumes that trespassers and recreational users only use site resources, and it does not consider exposure of these receptors to other larger and potentially more attractive areas in the region.

6.3.2.3 Air Modeling

Two types of models (indoor air and ambient air) were used in this HHRA to estimate potential indoor, ambient, and outdoor (trench) air concentrations for the following pathways:

- current exposure of trespassers and site workers to ambient air across the J.M. Mills Landfill (SCREEN3 model)
- future exposure of recreational users (adults and older children) to ambient air across the J.M. Mills Landfill (SCREEN3 model)
- future exposure of construction workers to outdoor air within a trench for the Nunes Parcel (Johnson & Ettinger model)
- future exposure of commercial workers to indoor air for buildings on the Nunes Parcel (Johnson & Ettinger model)
- future exposure of residents to indoor air for buildings on the Nunes Parcel (Johnson & Ettinger model)

6.3.2.3.1 Indoor Air

To estimate potential indoor air concentrations for the Nunes Parcel resulting from migration of VOCs and SVOCs from soil and/or groundwater, the Johnson & Ettinger (USEPA, 2004b) basement model was used. Standard default model parameters (e.g., soil-building pressure differential, enclosed space floor dimensions) for the advanced soil (SL-ADV) and groundwater (GW-ADV) models were used to estimate the infinite source building concentrations (Cbuilding), which were used as the EPC to quantitatively evaluate potential risks/hazards. To be conservative, it was assumed that soils at the Nunes Parcel primarily consisted of sand. Use of the standard default model parameters is likely conservative because they represent residential single

family dwellings rather than industrial buildings, which may likely have a greater air exchange rate and larger mixing dimensions.

Johnson & Ettinger model outputs for the COPC screening are included as Appendix T to this RI Report. The same model parameters were used to develop EPCs (i.e., Cbuilding concentrations that were used as EPCs in the quantification of potential risks and hazards). To develop EPCs using the model, UCLs were calculated for the soil and groundwater COPC data using ProUCL; these UCLs were then used in the model to estimate the infinite source building concentrations (Cbuilding) that were used in the quantitative evaluation of risks and hazards for the indoor air pathway.

6.3.2.3.2 Outdoor Air (Trench)

To estimate potential outdoor (trench) air concentrations for the Nunes Parcel resulting from migration of VOCs and SVOCs from soil and/or groundwater, the Johnson & Ettinger (USEPA, 2004b) slab-on-grade model was used. To be conservative, it was assumed that soils at the Nunes Parcel primarily consisted of sand. It was assumed that the excavated trench was 8 feet high, 8 feet long, and 3 feet wide. Depth to groundwater was assumed to be 13 feet bgs. The VDEQ (2007) air exchange rate of 2 per hour was used for the trenching scenario. The VDEQ (2007) air exchange rate of 2 per hour is based on measured ventilation rates of buildings. According to the VDEQ (2007), the air exchange rate is dependent on the ratio of trench width (relative to wind direction) to trench depth; if this ratio is equal to or less than 1, a circulation cell(s) will be set up within the trench that limits the degree of gas exchange with the atmosphere. However, if the ratio of trench width to trench depth is greater than 1, the air exchange is not restricted and is assumed to be upwards of 360 per hour (VDEQ, 2007). Therefore, use of the 2 per hour air exchange rate is thought to be conservative.

The Johnson & Ettinger model outputs for the COPC screening are included in Appendix T to this RI Report. The same model parameters were used to develop EPCs (i.e., Cbuilding concentrations that were used as EPCs in the quantification of potential risks and hazards). To develop EPCs using the model, UCLs were calculated for the soil and groundwater COPC data using ProUCL; these UCLs were then used in the model to estimate the infinite source building concentrations that were used in the quantitative evaluation of risks and hazards for the outdoor (trench) air pathway.

6.3.2.3.3 Ambient Air (J.M. Mills Landfill)

COPC concentrations were estimated at discrete distance intervals from passive gas vents located on the J.M. Mills Landfill using analytical data from ambient air (vent) grab samples and conservative exposure assumptions in the USEPA SCREEN3 air dispersion model. Meteorological data for the model was obtained from the National Oceanic and Atmospheric Administration National Climatic Data Center (NCDC) for the Pawtucket, Rhode Island weather station; this information indicated that winds generally blow from the southwest, west, or north in the vicinity of the site (NCDC, 2007).

SCREEN3 is a single source Gaussian plume model that provides maximum ground-level ambient air concentrations for point, area, flare, and volume sources. SCREEN3 can also generate concentration estimates for the cavity zone in building downwash scenarios and concentrations due to inversion break-up and shoreline fumigation. SCREEN3 is a screening version of the Industrial Source Complex model, Version 3. SCREEN3 assumes that the constituents do not undergo chemical transformation, and no other removal processes, such as wet or dry deposition, act on the plume during transport (USEPA, 1995).

Appendix X (Table 1) to this RI Report presents the SCREEN3 model input parameters used for this analysis. Limited data were available to characterize the landfill vents. Shield Environmental Associates, Inc. (Shield) indicates that vent height ranges from ground surface to approximately 3 feet, and inside vent diameter is 4 inches (pers. comm., J. Knauss, May 1, 2007). Default values were used for stack gas temperature (298 K) and ambient gas temperature (293 K). Receptor height (1.75 meters or 5.7 feet aboveground) was estimated using professional judgment for standard breathing zone height.

The J.M. Mills Landfill vent gas flow rate was estimated based on the range of values provided in the literature. Two studies present landfill gas flow rates (Kleinfelder, 2006; Gebert and Groengroeft, 2006). Kleinfelder (2006) reports gas flow rates from passive vents at the Old Southington Landfill Superfund Site in Connecticut ranging from 0.088 cubic feet per minute (ft^3/min) (0.000042 cubic meters per second [m^3/sec]) to 16.1 ft^3/min (0.00760 m^3/sec). Gebert and Groengroeft (2006) reported gas flow rates from biofiltered passive vents at a harbor sludge disposal landfill in Hamburg, Germany ranging from -4 cubic meters per hour (m^3/hr) (-0.001 m^3/sec) to 4 m^3/hr (0.001 m^3/sec). As noted by Gebert and Groengroeft (2006), passive emission rates of landfill gas are influenced by the pressure gradient between the landfill and the atmosphere, and as such, these rates are sensitive to local conditions. Therefore, the rates from the Old Southington Landfill in Connecticut were considered more representative of

potential emission rates for the J.M. Mills Landfill, located in Rhode Island, than the landfill located in Hamburg, Germany. For conservatism, the maximum reported gas emission rate from the Old Southington Landfill in Connecticut was selected for this analysis.

Site-specific gas emission rates from landfill vents were unavailable. Emission rates were, therefore, estimated using the landfill vent gas flow rate and the analytical results of ambient air grab samples collected by Shield in October 2003 near three vents located near the crest of the landfill (AR001-LF, ARFD-1, AR002-LF, and AR003-LF). Half detection limits were used for COPCs that were not detected in air grab samples. Emission rates for each vent were estimated using the following equation:

$$ER = EC * CF * GFR \qquad \textbf{6.1}$$

where:

ER = emission rate (grams per second)

EC = air emission concentration (micrograms per cubic meter)

CF = conversion factor (10^{-6} grams per microgram)

GFR = gas flow rate (m^3/sec)

Model assumptions include a single point emission source for a “representative stack.” The *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* (USEPA, 1992) recommends merging emissions parameters for multiple stacks with similar parameters. As the vents on the J.M. Mills Landfill occupy an area less than 100 meters in linear distance and have similar construction, emission rates from each vent were summed to generate the emission rates used for each COPC in the model. These point emission rates are presented in Appendix X (Table 2) to this RI Report.

Given the environmental setting for the J.M. Mills Landfill, particularly the distance to buildings and other urban structures, rural dispersion coefficients were used in the model, and no building downwash was assumed.

The J.M. Mills Landfill vents are located near and just below the crest of the J.M. Mills Landfill. The crest may exceed vent openings by up to approximately 10 feet within a lateral distance of 20 to 30 feet from the vents. This scenario was modeled using the complex terrain option in SCREEN3. Complex terrain scenarios are utilized for

scenarios in which terrain elevations exceed stack height. In these calculations, receptor height is assumed to be at ground surface on the elevated terrain.

Flat terrain was also modeled, assuming full meteorology (i.e., the model evaluates potential plume concentrations for each stability class and associated wind speeds) for distances from the "representative stack" of 1 to 650 meters. The nearest fence line to the vents is located approximately 90 meters to the northeast. The farthest fence line to the vents is located approximately 650 meters to the northwest.

SCREEN3 outputs include the maximum modeled 1 hour concentration across stability classes for each distance modeled from the source (USEPA, 1995). The results of the complex terrain modeling indicate that plume height is less than the terrain height at the crest of the J.M. Mills Landfill. As such, modeled exposure to receptors at ground surface on the crest of the J.M. Mills Landfill is negligible.

The results of the modeling indicate that maximum concentrations are present nearest the source (the vents); concentrations decrease as distance increases laterally toward the fence line and away from the vent location. The results from the flat terrain scenario were assumed to represent COPC concentrations on concentric circles radiating out from the "representative stack," which was assumed to occupy the location of the central vent, Vent 3 (see Figure 1 in Appendix X). Modeled concentrations for locations within the area of the J.M. Mills Landfill were used to estimate RME and CTE ambient air concentrations across the J.M. Mills Landfill.

Specifically, RME ambient air concentrations for the J.M. Mills Landfill were estimated by averaging modeled 1 hour maximum concentrations for points within the J.M. Mills Landfill along the approximate four cardinal (north, south, east, west) and four intercardinal (northeast, southeast, southwest, northwest) directions at each modeled distance from the plume. Appendix X (Figure 1) presents approximate locations for the modeled air concentration locations included in the RME ambient air concentration calculations (in red). RME EPCs are presented in Appendix X (Table 3).

CTE ambient air concentrations for the J.M. Mills Landfill were estimated by multiplying the RME ambient air concentration by a factor of 0.7 to estimate the maximum 8-hour concentration across the J.M. Mills Landfill. The USEPA (1992) recommends the use of this factor to convert 1 hour maximum concentrations into 8-hour maximum concentrations. CTE EPCs are presented in Appendix X (Table 3).

6.3.3 Intakes

Intakes (i.e., average daily doses) for the ingestion and dermal contact exposure pathways are expressed in milligrams per kilogram of body weight per day (mg/kg-day) and were calculated using the EPC and applying the exposure factors that account for ingestion rates, exposure frequency, exposure duration, body weight, and averaging time.

Intakes for the inhalation exposure pathways are expressed in micrograms per cubic meter (ug/m^3) and were calculated using the EPC and applying the exposure factors that account for exposure time, exposure frequency, exposure duration, and averaging time.

Intake equations and associated exposure factors used in this HHRA are presented in the Tables 4 series (Tables 4.1 RME through 4.13 CTE) (Appendix S). Intakes for individual exposure pathways and receptors are presented in the Table 7 series (Appendix S).

6.4 Toxicity Assessment

The toxicity assessment identifies the potential effects that are associated with exposure to a given chemical. The USEPA's guidance evaluates two types of toxic effects: carcinogenic effects and non-carcinogenic effects. To quantify carcinogenic effects, the USEPA has derived slope factors (SFs) for those chemicals found to cause a dose-related, statistically significant increase in tumor incidence in an exposed population relative to the incidence of tumors observed in an unexposed population. These dose-related incidence rates are usually determined in a laboratory study. SFs are typically developed based on oral toxicity studies and are reported as risk per dose in units of $(mg/kg\text{-}day)^{-1}$. The SFs are used to quantify the potential risk of cancer associated with a given exposure. Unit risk factors are based on inhalation studies and are reported in units of $(ug/m^3)^{-1}$. The weight-of-evidence classifications for carcinogenic COPCs for the oral/dermal pathways are presented in Table 6.1 (Appendix S). The weight-of-evidence classifications for carcinogenic COPCs for the inhalation pathway are presented in Table 6.2 (Appendix S).

To quantify non-carcinogenic effects, the USEPA has derived oral reference doses (RfDs) in units of mg/kg-day that represent a threshold of toxicity. RfDs are intended to represent "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to

be without an appreciable risk of deleterious effects during a lifetime" (USEPA, 1989). Reference concentrations were derived for the inhalation pathway and are presented in units of ug/m^3. Table 5.1 (Appendix S) presents non-cancer toxicity data for the oral/dermal pathways, and Table 5.2 (Appendix S) presents non-cancer toxicity data for the inhalation pathway. Consistent with the USEPA Region 1 guidance, surrogate RfDs were used for non-carcinogenic PAHs lacking toxicity values (e.g., naphthalene for 2-methylnaphthalene).

The oral SFs and RfDs described above were used to evaluate both ingestion and dermal contact exposure routes. Because most oral toxicity values are based on an administered dose, these toxicity values were sometimes adjusted (expressed as an absorbed dose) when evaluating dermal exposure scenarios. The USEPA requires this adjustment only when the gastrointestinal absorption of a compound is less than 50 percent (USEPA, 2004b).

Toxicity data presented are from the USEPA Integrated Risk Information System on-line database (USEPA, 2009), the USEPA Superfund Technical Support Center (STSC), the California Environmental Protection Agency (CalEPA), the Agency for Toxic Substances and Disease Registry (ATSDR), and the USEPA (1997b) Health Effects Assessment Summary Tables. The selection of toxicity values was based on the USEPA (2003b) recommended hierarchy for human health toxicity values. The USEPA (2003b) memorandum on human health toxicity values describes a three-tiered hierarchy that consists of: Tier 1 – Integrated Risk Information System (IRIS); Tier 2 – Provisional Peer Reviewed Toxicity Values developed by STSC; and Tier 3 – Other Toxicity Values, including USEPA and non-USEPA sources, such as CalEPA, (ATSDR), and Health Effects Assessment Summary Table(s).

The quantitative evaluation of potential risks for carcinogens with a mutagenic mode of action (i.e., carcinogenic PAHs, vinyl chloride) followed the USEPA guidance entitled *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (USEPA, 2005). Specifically, the quantification of cancer risks for child receptors involves the use of age-dependent adjustment factors (ADAFs). An ADAF of 10 was used for exposures occurring before 2 years of age (0 to less than 2), and an ADAF of 3 was used for exposures occurring between 2 and less than 16 years of age, and an ADAF of 1 was used for exposures occurring after 16 years of age (USEPA, 2005). These ADAFs were used to quantify potential cancer risks for children and adolescents for all exposure pathways (i.e., ingestion, dermal contact, and inhalation). This approach was used for all carcinogenic PAHs [i.e., all PAHs with a toxic equivalency factor related to benzo(a)pyrene]. The evaluation of potential carcinogenic

risks for child receptors for inhalation of vinyl chloride used pro-rated equations as presented in the *Toxicological Profile for Vinyl Chloride* (IRIS, 2000). These methodologies are further discussed in Section 6.5.2.

6.5 Risk Characterization

The risk characterization integrates the results of the data evaluation, toxicity assessment, and exposure assessment to evaluate potential risks associated with exposure to site-related constituents in site soils, groundwater, sediments, surface water, leachate, ambient air, outdoor (trench) air, indoor air, and fish. Consistent with the USEPA (1989) guidance, the potential for carcinogenic risks and non-carcinogenic health hazards are evaluated separately.

The RAGS D Table 7 series and the Table 9 series (Appendix S) present the cancer and non-cancer intakes, as well as the cancer risks and non-cancer hazards, respectively. The Table 8 series are not presented as part of this HHRA because radiation risks are not of concern for the site. The Table 10 series (Appendix S) presents the media and exposure points with risks and hazards above the risk management range (i.e., risks greater than 1×10^{-4} and target organ hazard indices [HIs] greater than 1).

6.5.1 Non-Carcinogenic Health Hazards

The HI is used to characterize potential non-carcinogenic health hazards associated with exposure to multiple chemicals. This approach assumes that sub-threshold chronic exposures to multiple chemicals are additive. However, HQs should only be summed for constituents with the same target organ. The Table 7 series presents a cumulative HI, while the Table 9 series (Appendix S) presents target organ-specific HIs. The Table 10 series (Appendix S) presents exposure pathways with non-cancer target organ hazards greater than 1. The HI is calculated as follows:

$$\mathbf{HI = E1/RfD1 + E2/RfD2 + \ldots + Ei/RfDi} \qquad \mathbf{6.2}$$

where:

HI = Hazard Index

E/RfD = HQ

Ei = Exposure intake for the ith chemical (mg/kg-day)

RfDi = RfD for the ith chemical

An HQ value greater than 1 indicates that a calculated exposure is greater than the RfD for a given constituent and that there may be some potential for health concerns. Similarly, an HI greater than 1 indicates that overall exposure to all chemicals of interest may present a concern (USEPA, 1989).

The quantification of potential non-cancer hazards associated with the water pathways (i.e., surface water and groundwater) followed Exhibit 1-2 in the USEPA (2004a) RAGS Part E guidance. Specifically, if dermal assessment was not recommended in USEPA (2004a) RAGS Part E, no further evaluation of the dermal pathway was conducted for that constituent. Documentation related to the dermal pathway is provided in Appendix U to this RI Report.

Non-carcinogenic health hazards for each subarea of the site are discussed separately below.

6.5.1.1 J.M. Mills Landfill

RME and CTE non-cancer hazards for current landfill scenarios (i.e., exposure of receptors to surface soil, leachate, surface water, sediment, and ambient air) were equal to or below the USEPA target (HI = 1).

The future RME scenario involving exposure of recreational users (older children) to surface soil, sediments, surface water, ambient air, and leachate under a swimming scenario has HIs slightly above the USEPA target (RME HI for a swimming scenario was 2). Polychlorinated biphenyls (PCBs) in surface soil and metals (aluminum, cadmium and chromium) in surface water were the primary hazard drivers for this exposure scenario. However, target organ HIs were less than 1 for all media.

Non-cancer hazards for all other future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the landfill were equal to or less than the USEPA target.

6.5.1.2 Debris Fields

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the debris fields were less than the USEPA target for both RME and CTE scenarios.

6.5.1.3 Quinnville Wellfield

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Quinnville Wellfield were less than or equal to the USEPA target for both RME and CTE scenarios.

6.5.1.4 Southern Bank

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Southern Bank were less than or equal to the USEPA target for both RME and CTE scenarios.

6.5.1.5 Nunes Parcel

Non-cancer hazards for all current and future exposure pathways for non-residential receptors involving direct exposure of receptors to environmental media (i.e., soil, sediment, and surface water for recreational users and trespassers; soil, outdoor (trench) air and shallow groundwater for construction workers) within (or adjacent to) the Nunes Parcel were less than or equal to 1 for both RME and CTE scenarios. The non-cancer RME and CTE HI for exposure of future commercial workers to surface and subsurface soils and indoor air at the Nunes Parcel was 2, but target organ HQs were less than or equal to 1. Benzene had the highest HQ for indoor air (HQ of 1 for both RME and CTE scenarios).

As requested by the USEPA, a hypothetical residential scenario was evaluated for the Nunes Parcel (i.e., residential exposure to surface and subsurface soils and indoor air). The non-cancer RME and CTE HIs for the resident were 10 and 7, respectively. Target organ HIs exceeded 1 due to benzene in indoor air (HQ of 5 for RME scenario; HQ of 3 for the CTE scenario)

6.5.1.6 Wetlands

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within the wetlands were less than the USEPA target for both RME and CTE scenarios.

6.5.1.7 Blackstone River and Operable Unit 2 Ponds

The current/future scenarios involving exposure of recreational receptors (adults and young children) to fish tissue via fish consumption have HIs greater than the USEPA target (RME HIs range from 20 to 4; CTE HIs range from 10 to 2). Area-specific HIs generally decrease in the following order: BR-2 (downstream of Ashton Dam, but upstream of OU2), OU2 (includes stretch of river adjacent to the site and site ponds), BR-1 (upstream of Ashton Dam), and P-6 (background pond). Non-cancer hazards associated with consumption of fish from the background pond (P-6) were also greater than the USEPA target, though target organ HIs were less than 1 for the CTE scenario. PCBs were the primary hazard driver for the Blackstone River and site ponds (BR-1, BR-2, and OU2). PCBs and mercury were the primary hazard drivers for the background pond (P-6).

6.5.1.8 Site-wide Groundwater (Potable Use)

The future scenarios involving exposure of residential receptors (adults and young children) to site-wide groundwater via ingestion, dermal contact, and inhalation have HIs greater than the USEPA target (RME HI of 200; CTE HI of 10). Naphthalene, PCBs, aluminum, arsenic, cadmium, cobalt, iron, manganese, thallium, and benzene were the primary hazard drivers for this exposure scenario.

6.5.1.9 Lead Evaluation

As requested by the USEPA, a lead evaluation was conducted for OU2. The lead evaluation is presented in Appendix CC and summarized briefly here. Specifically, the USEPA (2003c) Adult Lead Model (ALM) and the USEPA (1994b) Integrated Exposure Uptake Biokinetic Model were used to evaluate potential risks associated with exposure of human receptors to lead in site-related media. As requested by the USEPA, each subarea of the site was evaluated separately. The lead evaluation identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- exposure of commercial workers to soils within the RIDEM Soil Removal Area
- exposure of construction workers to soils at the Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

However, the quantification of potential risks for the commercial worker, construction worker, and hypothetical young child resident exposed to soils within the RIDEM Soil Removal Area is based on a very limited (*n* = 5) sample size, which may present an artificially high average due to lead concentrations in sample SO-033-NP (2,380 milligrams per kilogram [mg/kg] in the 0 to 1 foot interval and 5,460 mg/kg in the 1 to 5-foot interval). Although the potential exposure of construction workers to site soils produces risks above the USEPA target, these risks would likely be mitigated with the use of proper health and safety protocols, properly trained personnel, and personal protective equipment.

6.5.2 Carcinogenic Risk

Carcinogenic risk is expressed as a probability of developing cancer over the course of a lifetime as a result of a given level of exposure (USEPA, 1989) (also referred to as "excess cancer risk"). The Table 7 series and Table 9 series (Appendix S) present cancer risks for individual COPCs for each exposure pathway and receptor. As stated previously, the Table 8 series is not presented as part of this HHRA because radiation risks are not of concern for the site. As requested by the USEPA, the Table 10 series (Appendix S) presents exposure pathways with cancer risks greater than 10^{-4}.

For a given chemical and exposure route, carcinogenic risk is calculated as follows:

$$\textbf{Risk} = \textbf{E} \times \textbf{SF} \qquad \textbf{6.3}$$

where:

E = Exposure Intake (mg/kg-day)

SF = Slope Factor $(\text{mg/kg-day})^{-1}$

To assess overall cancer risk, risks from various COPCs are assumed to be additive and are summed (USEPA, 1989).

The USEPA uses a range of cancer risks of 1×10^{-4} to 1×10^{-6} as a "target range within which the Agency strives to manage risks as part of a Superfund cleanup" (USEPA, 1991). The National Contingency Plan states that "for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 1×10^{-4} to 1×10^{-6}" (USEPA, 2003d). The RIDEM's target risk range is 1×10^{-5} to 1×10^{-6}.

The quantification of potential cancer risks associated with the water pathways (i.e., surface water and groundwater) followed Exhibit 1-2 in the USEPA (2004a) RAGS Part E guidance. Specifically, if dermal assessment was not recommended in USEPA (2004a) RAGS Part E, no further evaluation of the dermal pathway was conducted for that constituent. Documentation related to the dermal pathway is provided in Appendix U to this RI Report.

For child receptors (i.e., young child, older child, and adolescent), the quantification of potential cancer risks for carcinogens with a mutagenic mode of action (i.e., carcinogenic polycyclic aromatic hydrocarbons [PAHs], vinyl chloride) followed the USEPA guidance entitled *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (USEPA, 2005). The quantification of cancer risks for child receptors involves the use of ADAFs. Specifically, an ADAF of 10 was used for exposures occurring before 2 years of age (0 to less than 2), an ADAF of 3 was used for exposures occurring between 2 and less than 16 years of age, and an ADAF of 1 was used for exposures occurring after 16 years of age (USEPA, 2005). These ADAFs were used to quantify potential cancer risks for children and adolescents for all exposure pathways (i.e., ingestion, dermal contact, and inhalation), where applicable. The following general equation demonstrates how ADAFs were incorporated into the risk calculations:

$$\textbf{Risk} = \textbf{Intake (mg/kg-day)} \times \textbf{SF (mg/kg-day)}^{-1} \times \textbf{ADAF}$$

The above equation was used to quantify potential cancer risks for child receptors for carcinogenic PAHs [i.e., all PAHs with a toxic equivalency factor related to benzo(a)pyrene].

Carcinogenic risks for child receptors for inhalation of vinyl chloride followed that presented in the Toxicological Profile for Vinyl Chloride (IRIS, 2000). The following

equations present the pro-rated equations used to evaluate inhalation exposures to vinyl chloride:

Early life risk = (4.4 x 10^{-6} µg/m^3) x EPC (µg/m^3)

Later life risk = (4.4 x 10^{-6} µg/m^3) x EPC (µg/m^3) x (ED [years]/70)

Total risk = early life risk + later life risk

Carcinogenic risks for each subarea of the site are discussed separately below.

6.5.2.1 J.M. Mills Landfill

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the J.M. Mills Landfill were within or less than the USEPA target risk range of 1 x 10^{-4} to 1 x 10^{-6} for both RME and CTE scenarios.

Landfill exposure scenarios that exceeded a risk level of 1 x 10^{-6} were:

- current exposure of trespassers to surface soil, sediment, surface water, leachate, and ambient air (RME risk = 3 x 10^{-5}; CTE risk = 9 x 10^{-6})
- future exposure of recreational users while wading to surface soil, sediment, surface water, leachate, and ambient air (RME risk = 5 x 10^{-5}; CTE risk = 2 x 10^{-5})
- future exposure of recreational users while swimming to surface soil, sediment surface water, leachate, and ambient air (RME risk = 5 x 10^{-5}; CTE risk = 2 x 10^{-5})

Exposure scenarios with risks less than 1 x 10^{-6} were:

- current exposure of site workers to ambient air (RME risk = 5 x 10^{-7}; CTE risk = 1 x 10^{-7})

6.5.2.2 Debris Fields

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the debris fields were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Both exposure scenarios evaluated for the debris fields exceeded a risk level of 1×10^{-6}, including:

- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 2×10^{-5}; CTE risk = 3×10^{-6})
- future exposure of recreational users while wading and swimming to surface soil, sediment, and surface water (RME risk = 3×10^{-5}; CTE risk = 6×10^{-6})

6.5.2.3 Quinnville Wellfield

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Quinnville Wellfield were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Exposure scenarios for the Quinnville Wellfield that exceeded a risk level of 1×10^{-6} were:

- current exposure of commercial workers to surface soil (RME risk = 2×10^{-5}; CTE risk = 4×10^{-6})
- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 1×10^{-5}; CTE risk = 4×10^{-6})
- future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 2×10^{-5}; CTE risk = 7×10^{-6})
- future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 2×10^{-5}; CTE risk = 7×10^{-6})
- future exposure of commercial workers to surface soil (RME risk = 2×10^{-5}; CTE risk = 4×10^{-6})

Exposure scenarios with risks less than 1×10^{-6} were:

- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (RME risk = 1×10^{-6}; CTE risk = 6×10^{-7})

6.5.2.4 Southern Bank

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Southern Bank were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Exposure scenarios for the Southern Bank that exceeded a risk level of 1×10^{-6} were:

- current/future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 3×10^{-5}; CTE risk = 8×10^{-6})

- current/future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 3×10^{-5}; CTE risk = 8×10^{-6})

- current exposure of trespassers to sediment (RME risk = 5×10^{-6}; CTE risk = 2×10^{-6})

- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (RME risk = 2×10^{-6})

Exposure scenarios with risks less than 1×10^{-6} were:

- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (CTE risk = 6×10^{-7})

6.5.2.5 Nunes Parcel

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Nunes Parcel were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios, except for the future hypothetical resident (adult + child) exposed to surface and subsurface soils and indoor air (RME risk = 1×10^{-3}; CTE risk = 5×10^{-4}) and future

commercial worker exposed to surface and subsurface soils and indoor air (RME risk = 2 x 10^{-4}).

Exposure scenarios for the Nunes Parcel that exceeded a risk level of 1 x 10^{-6} were:

- current exposure of commercial workers to surface soil (RME risk = 4 x 10^{-5}; CTE risk = 8 x 10^{-6})
- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 3 x 10^{-5}; CTE risk = 1 x 10^{-5})
- future exposure of recreational users while wading to surface and subsurface soil, sediment, and surface water (RME risk = 7 x 10^{-5}; CTE risk = 2 x 10^{-5})
- future exposure of recreational users while swimming to surface and subsurface soil, sediment, and surface water (RME risk = 7 x 10^{-5}; CTE risk = 2 x 10^{-5})
- future exposure of commercial workers to surface and subsurface soil and indoor air (RME risk = 2 x 10^{-4}; CTE risk = 5 x 10^{-5})
- future exposure of construction workers to surface and subsurface soil, including fugitive dust, outdoor (trench) air, and shallow groundwater (RME risk = 5 x 10^{-6}; CTE risk = 2 x 10^{-6})
- future exposure of hypothetical residents to surface and subsurface soil (RME risk = 1 x 10^{-3}; CTE risk = 5 x 10^{-4})

6.5.2.6 Wetlands

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within the wetlands were within or less than the USEPA target risk range of 1 x 10^{-4} to 1 x 10^{-6} for both RME and CTE scenarios.

All wetland exposure scenarios exceeded a risk level of 1 x 10^{-6}, including:

- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 9 x 10^{-6}; CTE risk = 3 x 10^{-6})

- future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 1 x 10^{-5}; CTE risk = 4 x 10^{-6})

- future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 1 x 10^{-5}; CTE risk = 5 x 10^{-6})

6.5.2.7 Blackstone River and Operable Unit 2 Ponds

The future scenarios involving exposure of recreational receptors (adults and young children) via fish consumption from OU2, BR-1, and BR-2 have cumulative cancer risks (adult + child) greater than the USEPA target risk range (total RME risk for OU2 = 2 x 10^{-4}; total RME risk for BR-1 = 2 x 10^{-4}; total RME risk for BR-2 = 3 x 10^{-4}). RME cancer risks for the background pond (P-6 = 5 x 10^{-5}) were within the USEPA target risk range of 1 x 10^{-4} to 1 x 10^{-6}. Under a CTE scenario, cancer risks for OU2, BR-1, BR-2, and P-6 were within the USEPA target risk range (4 x 10^{-5}, 3 x 10^{-5}, 6 x 10^{-5}, and 1 x 10^{-5}, respectively). All risks associated with fish consumption were above a risk level of 1 x 10^{-6}, including the background (reference) pond.

Area-specific risks generally decrease in the following order: BR-2 (downstream of Ashton Dam, but upstream of OU2), OU2 (includes stretch of river adjacent to the site and site ponds), BR-1 (upstream of Ashton Dam), and P-6 (background pond). Cancer risks (adult + child) associated with consumption of fish from the background pond (P-6) were above 1 x 10^{-6} (RME risk = 5 x 10^{-5}; CTE risk = 1 x 10^{-5}). PCBs, carcinogenic PAHs, pesticides, and arsenic were the primary risk driver for the Blackstone River and site ponds (BR-1, BR-2, and OU2).

Because there was no apparent association between the proximity to OU2 and elevated risks from the consumption of fish, a statistical evaluation (i.e., analysis of variance) was conducted to determine if there were statistically significant differences in fish tissue PCB concentrations in the various areas evaluated in this assessment. The results of this analysis are provided in Section 6.6.3.1. This analysis concluded that, in general, PCB concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different from PCB homolog concentrations in fish collected from upstream locations within the Blackstone River (BR-1 and BR-2). A memorandum describing the Analysis of Variances (ANOVAs) is included as Appendix Y to this RI Report. It should be noted that the Massachusetts Department of Environmental Protection issued a Fish Advisory for the Blackstone River in Massachusetts for elevated PCBs in fish tissue in the 1990s.

6.5.2.8 Site-wide Groundwater (Potable Use)

The future scenarios involving exposure of residential receptors (adults and young children) to sitewide groundwater via ingestion, dermal contact, and inhalation have cumulative RME cancer risks greater than the USEPA target of 1×10^{-4} to 1×10^{-6} (total RME risk = 7×10^{-3} [adult + child]). However, under a CTE scenario, cumulative cancer risks are within the USEPA target risk range of 1×10^{-4} to 1×10^{-6}, but above 1×10^{-6} (total CTE risk = 1×10^{-4} [adult + child]). Arsenic, carcinogenic PAHs, 1,4-dioxane, 4-chloroaniline, atrazine, bis(2-ethylhexyl)phthalate, naphthalene, 1,4-dichlorobenzene, chloroform, ethylbenzene, methyl tert-butyl ether, tetrachloroethene, trichloroethene, vinyl chloride, aldrin, dieldrin, PCBs, and benzene were the primary risk drivers for this exposure scenario.

6.5.3 Summary

The following table presents a summary of total risks and hazards (risks/hazards that exceed a cancer risk of 1×10^{-4} and a target organ HI of 1 are highlighted):

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Southern Bank	Current Older Child/Adult Rec. User	surface soil, surface water, sediment	RME	3E-05	3E-01		N/A
			CT	8E-06	6E-02		
Nunes Parcel	Current Adult Commercial Worker	surface soil	RME	4E-05	3E-01		N/A
			CT	8E-06	2E-01		
Quinnville Wellfield	Current Adult Commercial Worker	surface soil	RME	2E-05	3E-01		N/A
			CT	4E-06	1E-01		
Nunes Parcel	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	3E-05	3E-01		N/A
			CT	1E-05	1E-01		
Quinnville Wellfield	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	1E-05	3E-01		N/A
			CT	4E-06	6E-02		

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Upstream of Landfill (Debris Fields)	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	2E-05	3E-01		N/A
			CT	3E-06	4E-02		
Wetlands	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	9E-06	9E-02		N/A
			CT	3E-06	2E-02		
Landfill	Current Adolescent Trespasser	surface soil, surface water, sediment, leachate, ambient air	RME	3E-05	8E-01		N/A
			CT	9E-06	3E-01		
Southern Bank	Current Adolescent Trespasser	sediment	RME	5E-06	4E-02		N/A
			CT	2E-06	1E-02		
Landfill	Current Adult Site Worker	ambient air	RME	5E-07	1E-02		N/A
			CT	1E-07	7E-03		
OU2	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME	**2E-04**	**1E+01**	Fish Tissue	(C) - benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, aldrin, dieldrin, arsenic (NC) - PCBs
			CT	4E-05	**8E+00**		
BR-1	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME	**2E-04**	**1E+01**	Fish Tissue	(C) - benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, heptachlor epoxide, arsenic (NC) - PCBs
			CT	3E-05	**6E+00**		
BR-2	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME	**3E-04**	**2E+01**	Fish Tissue	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, arsenic (NC) - PCBs
			CT	6E-05	**1E+01**		
P-6	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME	5E-05	**4E+00**	Fish Tissue	(NC) - PCBs, mercury
			CT	1E-05	2E+00		

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
On-site Monitoring Wells	Future Young Child/Adult Resident	groundwater	RME	**7E-03**	**2E+02**	ground water	(C) - 1,4-dioxane, 4-chloroaniline, atrazine, benzo(a)anthracene, benzo(a)pyrene; benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate; indeno(1,2,3-cd)pyrene, naphthalene, 1,4-dichlorobenzene, benzene, chloroform, ethylbenzene, methyl tert-butyl ether, tetrachloroethene, trichloroethene, vinyl chloride, PCBs, aldrin, dieldrin, arsenic (NC) - naphthalene, benzene, PCBs, aluminum, arsenic, cadmium, cobalt, iron, manganese, thallium
			CT	1E-04	**1E+01**		
Southern Bank	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME	3E-05	3E-01		N/A
			CT	8E-06	6E-02		
Southern Bank	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME	3E-05	3E-01		N/A
			CT	8E-06	7E-02		
Landfill/Adjacent to Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment, leachate, ambient air	RME	5E-05	1E+00		N/A
			CT	2E-05	4E-01		
Landfill/Adjacent to Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment, leachate, ambient air	RME	5E-05	2E+00		N/A
			CT	2E-05	8E-01		
Nunes Parcel/Downstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME	7E-05	5E-01		N/A
			CT	2E-05	2E-01		
Nunes Parcel/Downstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME	7E-05	5E-01		N/A
			CT	2E-05	2E-01		
Quinnville Wellfield/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME	2E-05	4E-01		N/A

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
			CT	7E-06	9E-02		
Quinnville Wellfield/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME CT	2E-05 7E-06	4E-01 1E-01		N/A
Debris Fields/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME CT	3E-05 6E-06	4E-01 6E-02		N/A
Debris Fields/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME CT	3E-05 6E-06	4E-01 7E-02		N/A
Wetlands	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME CT	1E-05 4E-06	1E-01 3E-02		N/A
Wetlands	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME CT	1E-05 5E-06	1E-01 3E-02		N/A
Nunes Parcel	Future Adult Commercial Worker	surface + subsurface soil, indoor air (vapor intrusion)	RME CT	**2E-04** 5E-05	2E+00 2E+00	Soil, indoor air	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, dibenz(a,h)anthracene, dieldrin, dioxin, arsenic; naphthalene, benzene, tetrachloroethene
Quinnville Wellfield	Future Adult Commercial Worker	surface soil	RME CT	2E-05 4E-06	3E-01 1E-01		N/A
Quinnville Wellfield	Future Adult Construction Worker	surface soil, groundwater	RME CT	1E-06 6E-07	3E-01 2E-01		N/A
Southern Bank	Future Adult Construction Worker	surface soil, groundwater	RME CT	2E-06 6E-07	4E-01 1E-01		N/A
Nunes Parcel	Future Adult Construction Worker	surface + subsurface soil, groundwater, outdoor (trench) air	RME	5E-06	8E-01		N/A

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
			CT	2E-06	4E-01		
Nunes Parcel	Future Young Child/Adult Resident	surface + subsurface soil, indoor air (vapor intrusion)	RME	**1E-03**	**1E+01**	soil	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, dioxin, arsenic; naphthalene, 1,4-dichlorobenzene, benzene, ethylbenzene, tetrachloroethene, vinyl chloride (NC) - benzene
			CT	**5E-04**	**7E+00**		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

6.6 Uncertainty Analysis

There are various sources of uncertainty inherent in the risk assessment process. These include uncertainties associated with exposure parameters and toxicity factors for which conservative assumptions are typically used so as not to underestimate risk. The objective of an uncertainty analysis is to present key information regarding assumptions and uncertainties in the risk assessment process to place the quantitative risk estimates in proper perspective (USEPA, 1989).

6.6.1 Exposure Factors

Sources of uncertainty in this HHRA include exposure factors, such as ingestion rates, area use factors, and exposure frequencies. The majority of the exposure factors used in this HHRA were USEPA-recommended default values that may not accurately

reflect actual site exposure conditions. For example, the USEPA-recommended soil ingestion rate of 330 mg/day for the construction workers (USEPA, 2002c) was used, although more recent information (Calabrese, 2003) suggests that this soil ingestion rate may be too high. Stanek et al. (1997) reported a 95th percentile soil ingestion rate for adults of 331 mg/day. This soil ingestion rate, however, was apparently influenced by a single individual with a compromised health status, and was characterized in the study as being "substantially uncertain." According to Calabrese (one of the paper's coauthors), the result obtained from this individual does not reflect a daily soil ingestion rate, but rather, represents soil accumulation over a 3- to 4-day period (Calabrese, 2003). As such, Calabrese (2003) stated that the soil ingestion rate of 331 mg/day is "uncertain, unstable, and artificially inflated," and recommended use of the upper 75th percentile value from this study (49 mg/day), which represents a more stable high-end soil ingestion rate.

Other high-end soil ingestion rates have been recommended by the USEPA and state agencies that are less than 330 mg/day. For example, in deriving soil screening levels, the USEPA (2002c) recommends a soil ingestion rate of 100 mg/day for outdoor workers engaged in "contact intensive activities." A "contact-intense" soil ingestion rate of 100 mg/day is also recommended by the USEPA for use in the ALM (USEPA, 2003a). As such, use of the 330 mg/day soil ingestion rate for construction workers is a conservative approach in that actual exposures are unlikely to be higher and may actually be much lower than the default value.

The exposure frequencies used to evaluate soil, sediment, surface water, and leachate exposures for trespassers, recreational users, and commercial workers may be overly conservative given the size of each subarea relative to the entire site. The site generally lacks distinguishing physical features that would indicate selective use of one subarea over another. Further, on-site media were assumed to represent 100 percent of potential exposure (i.e., FI = 1), which may be conservative given that recreational users may be frequenting other attractive areas within the region rather than just the OU2 site itself. The ingestion factors (e.g., soil, sediment, fish) are conservative in that they assume an individual's exposure occurs only at the site (i.e., limited to subareas of OU2), and it does not consider the exposure to other environmental media associated with other non-site-related activities (e.g., residential gardening). Using these exposure parameters to estimate potential risk is a conservative approach, indicating risks are unlikely to be higher and may actually be much lower than the risk estimates presented in this HHRA.

6.6.2 Implementation of Supplemental Cancer Guidance

At the request of the USEPA, this HHRA used the *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposures to Carcinogens* (USEPA, 2005) in the quantitative evaluation of carcinogenic risks for PAHs and vinyl chloride. Specifically, the USEPA requested that ADAFs be applied to increase potential risk estimates for child receptors (i.e., young children, older children, and adolescents) exposed to PAHs (vinyl chloride risks were quantified using pro-rated equations consistent with the USEPA [2005] guidance). The basis for this adjustment, as reported in the USEPA guidance (2005), is a limited number of animal studies in which tumor incidences were reported for both early-life stages and adults as separate experimental groups. To quantify the potential difference in susceptibility between early-life and adult exposure, the USEPA (2005) estimated the ratio of potency from early life exposure to the potency from adult exposure (USEPA, 2005). The resulting ADAFs are primarily based on studies of acute, repeated, and lifetime exposures for six chemicals with a mutagenic mode of action (USEPA, 2005). The ADAF of 10 for children ages 0 to less than 2 years represents "an approximation of the weighted geometric mean tumor incidence ratio from juvenile or adult exposures in the repeated dosing studies" (USEPA, 2005). The ADAF of 3 for children ages 2 to less than 16 years represents a midpoint between 1 (i.e., no adjustment for adult exposure) and 10 (i.e., 10-fold adjustment for first 2 years of life) on a logarithmic scale (USEPA, 2005). These ADAFs are conservative in that many of the chemical-specific ratios were less than 1 (i.e., 45 percent of the ratios used to derive the ADAF of 10 were less than 1 as indicated in Table 8 of the USEPA guidance [2005]). Further, applying these ADAFs to already-conservative upper-bound SFs provides a conservative upper-bound estimate of potency.

6.6.3 Consideration of Background Concentrations

PCBs were the primary risk driver for fish tissue. Arsenic was a primary risk driver for groundwater. The USEPA (2002a and 2002c) guidance on the use of background data in risk assessments indicates that under the Comprehensive Environmental Response, Compensation, and Liability Act program, cleanup levels are generally not set below natural or anthropogenic background concentrations. The following subsections discuss background/reference area concentrations of PCBs in fish and arsenic in groundwater and how these concentrations generally compare to those found on site.

6.6.3.1 Fish

PCBs were the primary risk driver for the fish consumption pathway. A statistical evaluation (i.e., analysis of variance) of fish tissue PCB data (fillet and whole-body) was conducted to determine if there are statistically significant differences in fish tissue PCB concentrations in samples collected from various stretches of the Blackstone River, OU2 ponds, and a background/reference area pond.

The statistical evaluation of fish PCB homolog data consisted of ANOVA using a software package (Statistix 7). Prior to analysis, the fish data were separated into species and sample type (i.e., fillet and whole-body), and in some instances, size ranges, if sufficient data were available. Subsequently, the data sets were tested for normality.

A parametric One-Way Analysis of Variance (AOV) was conducted for data sets that followed a normal or lognormal distribution. Following the One-Way AOV, a Bonferroni Comparison of Means (alpha = 0.05) was used to compare the means of the different groups.

For non-normal data sets, the Kruskal-Wallis One-Way AOV procedure was used, which relies on a ranking system to determine if there are significant differences in central values (i.e., medians) between groups. Following the Kruskal-Wallis One-Way AOV, a Comparison of Mean Ranks (alpha = 0.05) was used to compare the different groups.

Analyses were performed on both lipid-normalized and non-normalized PCB fish tissue data.

In general, PCB concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different from PCB homolog concentrations in fish collected from upstream locations within the Blackstone River (BR-1 and BR-2). A memorandum describing the ANOVAs is included as Appendix Y to this RI Report. This statistical conclusion is further supported by fish tissue PCB results of the Blackstone River Initiative Investigation reported in 1998 (Wright et al., 1998) that reported PCB presence in fish tissue at locations upstream of the site as far as Fisherville Impoundment, located in Grafton, Massachusetts, 25 to 30 miles upstream of OU2. In June 1994, the Massachusetts Department of Public Health issued fish consumption advisories for PCB contamination for Riverdale Pond, Rice City Pond, and the Blackstone River above Blackstone Gorge (Tupperware); the

closest reference being the area north of the Gorge (Massachusetts/Rhode Island state line), which is approximately 13 miles upstream of OU2.

Additionally, the U.S. Geological Survey (USGS) sampled fish tissue near Manville Dam, which is approximately 4 to 5 miles upstream of OU2 (USGS, 2002). Specifically, both fillet and whole-body samples of white suckers were collected during 1998 and 1999; fillet samples were analyzed for select metals, and whole-body samples were analyzed for organic compounds. The median total PCB concentration in fish tissue was 1,200 parts per billion (ppb) (USGS, 2002), which is similar to the median total PCB concentration in whole-body white suckers from OU2 (median for entire OU2 [river and ponds] was 1,250 ppb). The median total PCB concentration in whole-body white suckers from BR-3 (i.e., portion of the Blackstone River adjacent to OU2) was 1,850 ppb. However, it should be noted that the USGS data are from a single sampling event at a single sampling location, and field data (e.g., length, weight) were not provided in the USGS (2002) report.

The Massachusetts Department of Public Health (MassDOH) currently has a fish consumption advisory in effect for PCBs for the portion of the Blackstone River above Blackstone Gorge (MassDOH, 2008). Specifically, the advisory is “do not eat” for all fish species for children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers; and “do not eat” for carp and white sucker for the general public (MassDOH, 2008).

The Rhode Island Department of Health (RIDOH) currently recommends no consumption of any fish species, with the exception of trout, from the Blackstone River (RIDOH, 2008). However, this recommendation is based on mercury and applies to all areas of the Blackstone River, both upstream and downstream of the site (RIDOH, 2008).

6.6.3.2 Groundwater

Arsenic was a primary risk driver for hypothetical future residential exposure to groundwater. Site-wide groundwater samples had arsenic concentrations varying from non-detect (detection limit = 0.061 micrograms per liter [µg/L]) to 190 µg/L, with an average concentration of 15.4 µg/L. Arsenic concentrations in site-specific background/reference area groundwater samples (*n* = 9; MW-EA-1, MW-EA-3, MW-110A, MW-110B and MW-110C) ranged from non-detect (detection limit = 0.074 µg/L) to 1.1 µg/L, with an average concentration of 0.2 µg/L. Ayotte et al. (2003) suggested arsenic concentrations in New England bedrock aquifers commonly occur at

concentrations greater than 10 µg/L. Consistent with the USEPA (1989) guidance, risks/hazards for residential groundwater were calculated using data for unfiltered water samples, and arsenic concentrations in OU2 wells may be attributed to particulates, and not necessarily reflective of bioavailable arsenic concentrations at the exposure point. In addition, arsenic concentrations appear elevated in the area, and OU1 is currently asking for a waiver from the arsenic groundwater standard.

6.7 Summary and Conclusions

Results of this HHRA indicate that risks/hazards for soil, sediment, surface water, leachate, and/or ambient air for trespassers and recreational users, and soil, shallow groundwater, and outdoor (trench) air for construction workers were generally less than or within USEPA target levels (i.e., risk range of 1×10^{-4} to 1×10^{-6}; HI of 1). The majority of the cancer risks were on the order of 10^{-5} (i.e., above 1×10^{-6}).

Non-cancer hazards (expressed as an HQ) for ingestion of potable groundwater by future residents and consumption of fish from the Blackstone River and OU2 ponds were greater than the USEPA target of 1. In addition, risks to hypothetical future residential receptors from ingestion, dermal contact, and inhalation due to potable use of groundwater were greater than 1×10^{-4}, even though some COPCs contributing to elevated risks/hazards were generally present at concentrations less than their respective drinking water MCLs (e.g., benzene). The major contributors to the groundwater risk and hazard are arsenic, carcinogenic PAHs, 1,4-dioxane, 4-chloroaniline, atrazine, bis(2-ethylhexyl)phthalate, naphthalene, 1,4-dichlorobenzene, chloroform, ethylbenzene, methyl tert-butyl ether, tetrachloroethene, trichloroethene, vinyl chloride, aldrin, dieldrin, PCBs, benzene, aluminum, cadmum, cobalt, iron, manganese, and thallium.

Additionally, risks and hazards to recreational receptors eating resident fish from OU2, BR-1, and BR-2 were greater than 1×10^{-4} and target organ HIs of 1. However, the background/reference area pond (P-6) also had target organ hazards greater than 1 and risks in the range of 10^{-5}, which places site risks into a more regional perspective. Based on the statistical evaluation conducted for fish tissue PCB data, concentrations in fish from upstream portions of the Blackstone River are not significantly different from concentrations found in fish from OU2. Further, consumption of fish from the background/reference area pond (P-6) at the same rates as those used in the OU2 calculations resulted in hazards above the USEPA target of 1.

Risk to a future commercial worker exposed to soil and indoor air at the Nunes Parcel exceeded 1 x 10^{-4} due primarily to benzene in indoor air. Major contributors to risk are carcinogenic PAHs, bis(2-ethylhexyl)phthalate, dieldrin, dioxins, and/or arsenic in soil and benzene, naphthalene, and/or tetrachloroethene in indoor air. In addition, hazard and risk to a future resident exposed to soil and indoor air at the Nunes Parcel exceeded target organ HIs of 1 and a cancer risk of 1 x 10^{-4}. The exceedances are primarily due to benzene, naphthalene, 1,4-dichlorobenzene, ethylbenzene, tetrachloroethene, and/or vinyl chloride in indoor air and carcinogenic PAHs, PCBs, dieldrin, dioxins, bis(2-ethylhexyl)phthalate, and/or arsenic in soil.

The lead evaluation (Appendix CC to this RI Report) identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- Exposure of commercial workers to soils within the RIDEM Soil Removal Area
- Exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- Exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

In addition to the quantified risks and hazards mentioned above, physical hazards, such as asbestos, metal debris, tires, dilapidated buildings, and broken glass at the site may also present some risks. Asbestos, in particular, may present significant health risks due to its status as a Class A (known human) carcinogen if fibers are released into the air and inhaled. These physical hazards will be further considered in the Feasibility Study.

In summary, future residential and commercial exposure to soil and indoor air at the Nunes Parcel, hypothetical future residential potable use of site-wide groundwater, and consumption of fish from the Blackstone River and site ponds by recreational receptors were the only exposure pathways with risks/hazards greater than the USEPA targets (i.e., carcinogenic risks greater than 1 x 10^{-4} and non-carcinogenic hazards greater than 1). Risks/hazards for all other receptors and pathways were less than or within the USEPA target ranges. However, an evaluation of lead indicates that the USEPA target would be exceeded for site-wide groundwater, for construction-related exposures to soil at the Quinnville Wellfield, Southern Bank, and Nunes Parcel, and for commercial, residential, and construction-related exposures in the vicinity of the RIDEM Soil Removal Area of the Nunes Parcel.

Sufficient soil data were not collected at the Unnamed Island to characterize the impacts of the buried waste on soil quality. Therefore, risk and hazard estimation has

not been included in this HHRA for the Unnamed Island due to the inadequacy of the soil database for this area. Once supplemental soil data have been collected, a comprehensive risk evaluation for soil, leachate, sediment, and surface water will be performed for the Unnamed Island.

7. References

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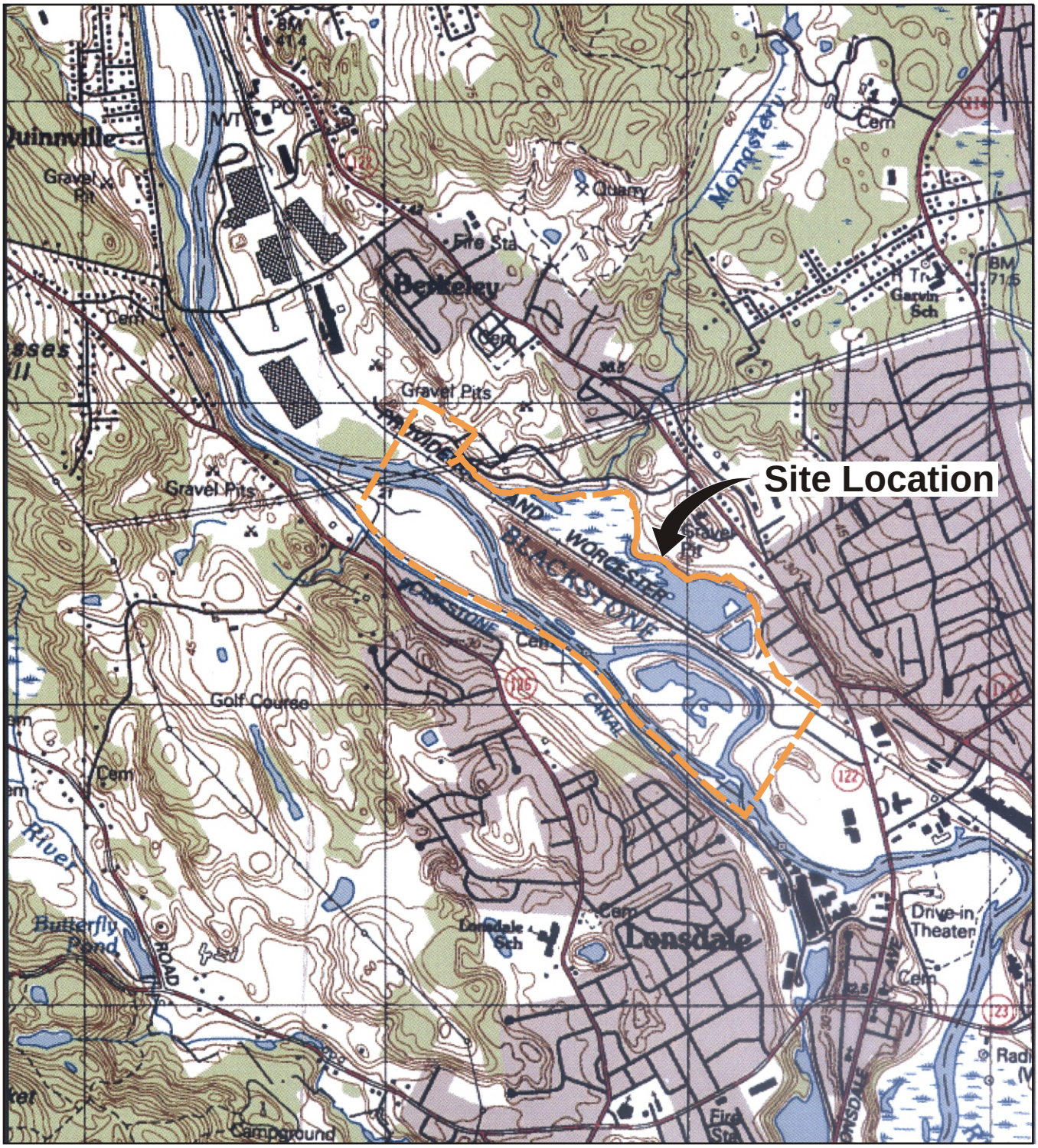
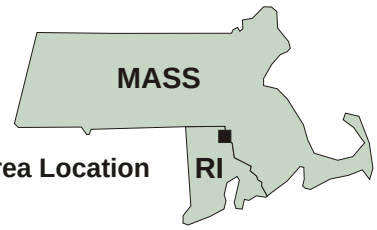


REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., ATTLEBORO, MASS.

0 0.25 0.5

Approximate Scale in Miles

DRAFT



Area Location

PETERSON PURITAN SUPERFUND SITE - OU2
CUMBERLAND AND LINCOLN, RHODE ISLAND

REMEDIAL INVESTIGATION REPORT

SITE LOCATION MAP

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
1-1

06/14/07 SYR-D85-DJH
37902006/37902n02.cdr

TABLE 0

SITE RISK ASSESSMENT IDENTIFICATION INFORMATION

Peterson Puritan Superfund Site - Operable Unit 2

Site Name/OU:	Peterson Puritan Superfund Site - Operable Unit 2
Region:	I
EPA ID Number:	Index No. _
State:	Rhode Island
Status:	Fund Lead Remedial Investigation
Federal Facility (Y/N):	Y
EPA Project Manager:	Dave Newton
EPA Risk Assessor:	Chau Vu
Prepared by (Organization):	Arcadis BBL
Prepared for (Organization):	Peterson Puritan PRP Group
Document Title:	Baseline Human Health Risk Assessment
Document Date:	April 2009
Probabilistic Risk Assessment (Y/N):	N
Comments:	

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Soil	Surface Soil	(1) Debris Fields; (2) Landfill; (3) Quinnville Wellfield; (4) Nunes Parcel; and (5) Wetlands	Trespasser	Adolescent	Dermal	Quant	Evidence of trespassing exists. Access by boat may occur infrequently.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Evidence of trespassing exists. Access by boat may occur infrequently.
			Southern Bank (Lincoln side)	Recreational User	Adult	Dermal	Quant	Access may occur during use of recreational trail.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Access may occur during use of recreational trail.
					Older Child	Dermal	Quant	Access may occur during use of recreational trail.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Access may occur during use of recreational trail.
			(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Dermal	Quant	Commercial workers have access to these areas and may contact surface soils.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Commercial workers have access to these areas and may contact surface soils.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current (cont.)	Soil	Surface Soil	(1) Nunes Parcel; (2) Wetlands; and (3) Quinnville Wellfield	Trespasser	Adolescent	Dermal Inhalation Ingestion	Quant Qual Quant	Access may occur infrequently by adolescents living nearby. Dust inhalation likely insignificant due to lack of invasive activities and dust generation. Access may occur infrequently by adolescents living nearby.
	Soil/ Groundwater	Ambient Air	Landfill	Trespasser	Adolescent	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
				Site Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
	Leachate	Leachate	Landfill	Trespasser	Adolescent	Dermal	Quant	Contact with leachate while trespassing may occur.
	Surface Water	Surface Water	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; and (4) Wetlands	Trespasser	Adolescent	Dermal Ingestion	Quant Qual	Wading may occur following access via boat. Wading scenario. Ingestion of surface water unlikely during wading.
					Adolescent	Dermal Ingestion	Qual Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact. Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
			Southern Bank (Lincoln side)	Recreational User	Adult	Dermal Ingestion	Quant Qual	Contact may occur during recreational use. Wading scenario. Ingestion of surface water unlikely during wading.
					Older Child	Dermal Ingestion	Quant Qual	Contact may occur during recreational use. Wading scenario. Ingestion of surface water unlikely during wading.
					Adult	Dermal Ingestion	Qual Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact. Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
					Older Child	Dermal Ingestion	Qual Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact. Accidental submersion in river while boating may occasionally occur, resulting in incidental ingestion.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current (cont.)	Sediment	Sediment	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Wetlands; and (5) Southern Bank	Trespasser	Adolescent	Dermal	Quant	Wading may occur following access via boat.
						Ingestion	Quant	Wading scenario. Ingestion of sediment likely during wading.
			Southern Bank (Lincoln Side)	Recreational User	Adult	Dermal	Quant	Wading may occur during recreational use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment likely during wading.
					Older Child	Dermal	Quant	Wading may occur during recreational use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment likely during wading.
Current/Future	Fish Tissue	Fish Tissue	(1) OU2 (Blackstone River and Ponds); (2) BR-1 (Blackstone River); (3) BR-2 (Blackstone River); and (4) P-6	Recreational User	Adult	Ingestion	Quant	Site data indicate the presence of site-related constituents in fish tissue.
					Young Child	Ingestion	Quant	Site data indicate the presence of site-related constituents in fish tissue.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Groundwater	Groundwater	On-Site Monitoring Wells	Resident	Adult	Dermal	Quant	Organic compounds are present in monitoring wells.
						Inhalation	Quant	Volatile compounds are present in monitoring wells. Exposures may occur during bathing/showering.
						Ingestion	Quant	On-site groundwater may be used as a source of drinking water or may migrate and impact off-site potable wells.
					Young Child	Dermal	Quant	Organic compounds are present in monitoring wells.
						Inhalation	Quant	Volatile compounds are present in monitoring wells. Exposures may occur during bathing/showering.
						Ingestion	Quant	On-site groundwater may be used as a source of drinking water or may migrate and impact off-site potable wells.
			Shallow Monitoring Wells	Construction Worker	Adult	Dermal	Quant	Contact with shallow groundwater during excavation may occur.
						Ingestion	Quant	Incidental ingestion of shallow groundwater may occur during excavation activities.
	Soil	Surface/ Subsurface Soil	(1) Landfill; (2) Southern Bank (Lincoln side); (3) Nunes Parcel; (4) Wetlands; (5) Quinnville Wellfield; (6) and Debris Fields	Recreational User	Adult	Dermal	Quant	Assumes future recreation site use.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Assumes future recreational site use.
					Older Child	Dermal	Quant	Assumes future recreation site use.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Assumes future recreational site use.
			(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Dermal	Quant	Commercial workers have access to these areas and may contact soils.
						Inhalation	Qual.	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Commercial workers have access to these areas and may contact soils.
	Soil	Surface/ Subsurface Soil	(1) Nunes Parcel and (2) Quinnville Wellfield; and (3) Southern Bank (Lincoln side)	Construction Worker	Adult	Dermal	Quant	Future utility/construction work on-site may be necessary during recreational development.
						Inhalation	Quant	Exposure to fugitive dust likely during trenching activities.
						Ingestion	Quant	Future utility/construction work on-site may be necessary during recreational development.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future (cont.)	Soil	Surface/ Subsurface Soil	Nunes Parcel	Resident	Adult	Ingestion	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
						Dermal	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
					Young Child	Ingestion	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
						Dermal	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
	Soil/ Groundwater	Ambient/Trench Air	(1) Nunes Parcel and (2) Quinnville Wellfield; and (3) Southern Bank (Lincoln side)	Construction Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
			Landfill	Recreational User	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
					Older Child	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
		Indoor Air	(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
	Leachate	Leachate	Landfill	Recreational User	Adult	Dermal	Quant	Contact with leachate may occur during recreational use.
					Older Child	Dermal	Quant	Contact with leachate may occur during recreational use.
	Surface Water	Surface Water	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Southern Bank (Lincoln side); and (5) Wetlands	Recreational User	Adult	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Older Child	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Adult	Dermal	Quant	Future recreational site use may include swimming in the river.
						Ingestion	Quant	Swimming scenario. Ingestion of surface water likely during swimming.
					Older Child	Dermal	Quant	Future recreational site use may include swimming in the river.
						Ingestion	Quant	Swimming scenario. Ingestion of surface water likely during swimming.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Sediment	Sediment	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Southern Bank (Lincoln side); and (5) Wetlands	Recreational User	Adult	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment is likely during wading.
					Older Child	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment is likely during wading.

(1) An adolescent is age 9-18 years old, a young child is age 1-6 years old; an older child is age 6-12 years old.

Errata for TARA Table 2s

Note that the following analytes on Tables 2.7:

2,4-Dimethylphenol
2-Chlorophenol
Benzaldehyde
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
2-Butanone
Bromodichloromethane
Chloroethane
Toluene
4,4'-DDD
4,4'-DDE
4,4'-DDT
alpha-BHC
Endosulfan Sulfate
Gamma-BHC (Lindane)
Heptachlor
Silver

and Table 2.9:

4-Chloro-3-methylphenol
Endosulfan I
Endosulfan II
Endosulfan Sulfate

were erroneously indicated to be COPCs (i.e., with rationale being “ASL” [Above Screening Levels]) even though the maximum detected concentration was below screening values. The COPC flag for these analytes should have been “N” with a rationale of “BSL” [Below Screening Levels].

In all cases, the inclusion of these analytes as COPCs in the subsequent calculations did not change any risk assessment conclusions.

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide (Excluding Nunes Parcel and Wetlands)															
	91-57-6	2-Methylnaphthalene	0.041 J	0.47	mg/kg	LQW-011	45/79	0.0079 - 0.83	0.47	0.27 (J)	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.028	1.3	mg/kg	SO-015-UI	50/79	0.0079 - 0.59	1.3	0.88	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.014	1	mg/kg	LQW-011	62/79	0.0085 - 0.41	1	0.73	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.018	2	mg/kg	SO-020-LF	72/79	0.0085 - 0.39	2	4	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.02	4.5	mg/kg	SO-020-LF	79/79	N/A	4.5	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.032	6.4	mg/kg	SO-015-UI	75/75	N/A	6.4	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.02	2.7	mg/kg	SO-015-UI	79/79	N/A	2.7	4.4	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.01	2.3	mg/kg	SO-015-UI	79/79	N/A	2.3	3.4 (J)	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.016	5.4	mg/kg	SO-020-LF	79/79	N/A	5.4	9.3	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.02	6.7	mg/kg	SO-020-LF	78/79	0.37	6.7	8.9	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.01	0.75	mg/kg	SO-015-UI	70/79	0.0085 - 3.4	0.75	0.94 (J)	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.044	9 J	mg/kg	SO-015-UI	79/79	N/A	9	15	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.035 J	1.1	mg/kg	SO-015-UI,SO-020-LF	57/79	0.0079 - 0.41	1.1	1.2	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.016	2.4	mg/kg	SO-015-UI	79/79	N/A	2.4	2.6 (J)	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.038 J	0.87	mg/kg	SO-015-UI	57/79	0.0079 - 0.5	0.87	0.28 (J)	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.018	13 J	mg/kg	SO-015-UI	79/79	N/A	13	14	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.036	18	mg/kg	SO-015-UI	79/79	N/A	18	19 (J)	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.027 J	0.16 J	mg/kg	LQW-012	9/79	0.16 - 0.86	0.16	0.13 (J)	390 N	N/A	N/A	N	BSL
	106-47-8	4-Chloroaniline	0.085 J	1.5 J	mg/kg	SO-046-DF	10/79	0.16 - 0.83	1.5	0.48 (U)	9 C	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.059 J	0.059 J	mg/kg	UI-TT-10, SO-W02-UI	1/79	0.16 - 0.86	0.059	0.48 (U)	31 N	N/A	N/A	N	BSL
	100-01-6	4-Nitroaniline	0.053 J	0.053 J	mg/kg	SO-W06-DF	1/79	0.16 - 2.2	0.053	1.2 (U)	18 N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.042 J	0.86 J	mg/kg	SO-086-UI	5/79	0.16 - 0.86	0.86	0.48 (U)	780 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.021 J	3.4	mg/kg	LQW-012	36/79	0.18 - 0.86	3.4	0.2 (J)	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.13 J	260 J	mg/kg	SO-086-UI	41/79	0.16 - 1.6	260	12	35 C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	0.036 J	1.1	mg/kg	SO-027-LF	28/79	0.16 - 3.4	1.1	3.5 (U)	260 C	N/A	N/A	N	BSL
	105-60-2	Caprolactam	2.5 J	2.5 J	mg/kg	LQW-009	1/79	0.16 - 0.86	2.5	0.48 (U)	3100 N	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.024 J	0.99	mg/kg	SO-015-UI	55/79	0.16 - 0.41	0.99	0.55	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.045 J	1.1	mg/kg	SO-015-UI	38/79	0.16 - 0.83	1.1	0.44	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	0.46 J	0.56 J	mg/kg	UI-TT-10, SO-W02-UI	2/79	0.16 - 0.86	0.56	0.48 (U)	4900 N	N/A	N/A	N	BSL
	131-11-3	Dimethylphthalate	0.036 J	0.11 J	mg/kg	SO-042-LF	2/79	0.16 - 0.86	0.11	0.48 (U)	4900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.023 J	0.74 J	mg/kg	SO-024-LF	26/79	0.16 - 0.83	0.74	0.48 (U)	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.04 J	27 J	mg/kg	UI-TT-03, SO-W04-UI	14/79	0.34 - 3.4	27	0.51 (J)	610 N	N/A	N/A	N	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	98-95-3	Nitrobenzene	0.53 J	0.53 J	mg/kg	UI-TT-10, SO-W02-UI	1/79	0.16 - 0.86	0.53	0.48 (U)	3.1 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	1.8	1.8	mg/kg	UI-TT-06, SO-W01-UI	1/79	0.16 - 0.83	1.8	0.48 (U)	99 C	N/A	N/A	N	BSL
	108-95-2	Phenol	0.009 J	0.12 J	mg/kg	SO-086-UI, UI-TT-03, SO-W04-UI	3/79	0.16 - 0.86	0.12	0.48 (U)	1800 N	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.005 J	0.005 J	mg/kg	SO-007-UI	1/78	0.0016 - 0.019	0.005	0.004 (J)	25 N	N/A	N/A	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.011	0.011	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.011	0.014 (U)	8.7 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.003 J	0.075	mg/kg	UI-TT-06, SO-W01-UI	2/78	0.0016 - 0.019	0.075	0.014 (U)	2.6 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.0018 J	0.044	mg/kg	UI-TT-06, SO-W01-UI	5/78	0.0016 - 0.019	0.044	0.011 (J)	2800 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.001 J	0.17	mg/kg	SO-030-LF	23/78	0.0041 - 0.09	0.17	0.27 (J)	6100 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.002 J	0.002 J	mg/kg	UI-TT-01,02, SO-W03-UI	1/78	0.0016 - 0.019	0.002	0.014 (U)	1.1 C	N/A	N/A	N	BSL
	75-15-0	Carbon disulfide	0.005 JTB	0.005 JTB	mg/kg	SO-013-UI	1/78	0.0016 - 0.019	0.005	0.014 (U)	67 N	N/A	N/A	N	BSL
	56-23-5	Carbon tetrachloride	0.004 J	0.004 J	mg/kg	UI-TT-03, SO-W04-UI	1/78	0.0016 - 0.019	0.004	0.014 (U)	0.25 C	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.003 J	0.005 J	mg/kg	UI-TT-06, SO-W01-UI	2/78	0.0016 - 0.019	0.005	0.014 (U)	31 N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.002 J	0.002 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.002	0.014 (U)	720 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.004 J	0.004 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.004	0.014 (U)	720 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.001 J	0.001 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.001	0.014 (U)	5.7 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.006 J	0.006 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.006	0.014 (U)	220 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.002 J	0.007 J	mg/kg	SO-069-BR	3/78	0.0016 - 0.019	0.007	0.014 (U)	7800 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.003 J	0.025	mg/kg	UI-TT-01,02, SO-W03-UI	2/78	0.0016 - 0.019	0.025	0.014 (U)	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0008 J	0.003 J	mg/kg	SO-046-DF	13/78	0.0016 - 0.019	0.003	0.0009 (J)	500 N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.015	0.015	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0049 - 0.019	0.015	0.014 (U)	60 N	N/A	N/A	N	BSL
	12672-29-6	Aroclor-1248	6.2 J	6.2 J	mg/kg	SO-W05-DF	1/79	0.016 - 0.18	6.2	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.077 J	2.5	mg/kg	SO-W06-DF	11/79	0.016 - 0.18	2.5	0.2 (U)	0.11 N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.045	1.6	mg/kg	LQW-010	60/79	0.016 - 0.043	1.6	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.001	0.058 J	mg/kg	LQW-010	36/72	0.0008 - 0.018	0.058	0.0081 (J)	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0016 J	0.083 J	mg/kg	LQW-011	60/76	0.0034 - 0.042	0.083	0.012	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.0017 J	0.066 J	mg/kg	LQW-010	22/60	0.0034 - 0.052	0.066	0.052	1.7 C	N/A	N/A	N	BSL
	319-84-6	Alpha-BHC	0.0017 J	0.0017 J	mg/kg	SO-W06-DF	1/79	0.0008 - 0.0092	0.0017	0.011 (U)	0.077 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.001	0.026 J	mg/kg	LQW-010	46/73	0.0008 - 0.021	0.026	0.56 (J)	1.6 C	N/A	N/A	N	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	60-57-1	Dieldrin	0.0031 J	0.81	mg/kg	SO-010-UI	70/79	0.0008 - 0.017	0.81	0.033	0.03 C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.0042 J	0.0042 J	mg/kg	SO-044-QW	1/78	0.0008 - 0.0092	0.0042	0.013 (J)	37 N	N/A	N/A	N	BSL
	33213-65-9	Endosulfan II	0.0021 J	0.026 J	mg/kg	LQW-010	8/78	0.0008 - 0.018	0.026	0.020 (U)	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.0013	0.011 J	mg/kg	SO-022-LF	18/50	0.0008 - 0.052	0.011	0.0075 (J)	37 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0041 J	0.058 J	mg/kg	SO-W06-DF	14/64	0.0008 - 0.042	0.058	0.0071 (J)	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.014 J	0.014 J	mg/kg	SO-016-UI	1/66	0.0008 - 0.018	0.014	0.0063 (J)	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00094 J	0.019 J	mg/kg	LQW-011	19/42	0.0008 - 0.022	0.019	0.6	1.6 C	N/A	N/A	N	BSL
	1024-57-3	Heptachlor epoxide	0.0023 J	0.013 J	mg/kg	SO-083-UI	2/78	0.0008 - 0.013	0.013	0.11 (U)	0.053 C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.0027	0.028 J	mg/kg	SO-078-UI, UI-TT-10, SO-W02-UI	6/78	0.0008 - 0.092	0.028	0.034	31 N	N/A	N/A	N	BSL
	1746-01-6	Dioxin TEQ	0.0000088	0.000059	mg/kg	LLF-002	6/6	N/A	0.000059	NA	4.5E-06 C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	3370	14600	mg/kg	SO-028-LF	78/78	N/A	14600	6350	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.1 J	63.6 J	mg/kg	UI-TT-06, SO-W01-UI	15/78	0.1 - 21	63.6	12 (U)	3.1 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	2	26.1	mg/kg	SO-010-UI	78/78	N/A	26.1	9.5	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	18	881 J	mg/kg	UI-TT-01,02, SO-W03-UI	64/78	31 - 50	881	49.6	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.11 J	2.4	mg/kg	UI-TT-10, SO-W02-UI	73/78	0.06 - 0.075	2.4	0.5	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.13	23.5	mg/kg	SO-028-LF	75/78	0.87 - 1.1	23.5	1.9	7 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	336 J	11600 J	mg/kg	UI-TT-01,02, SO-W03-UI	58/78	770 - 1435	11600	1180	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	14	560	mg/kg	LQW-012	78/78	N/A	560	89.6	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2 J	12.8	mg/kg	UI-TT-03, SO-W04-UI	30/78	7.2 - 17.3	12.8	4.7 (J)	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	15.7	1420 J	mg/kg	UI-TT-03, SO-W04-UI	78/78	N/A	1420	75.1	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.2 J	3.8	mg/kg	SO-083-UI	55/78	0.14 - 0.57	3.8	0.63 (U)	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	5200	79600 J	mg/kg	SO-W06-DF	78/78	N/A	79600	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	11	2230 J	mg/kg	UI-TT-01,02, SO-W03-UI	78/78	N/A	2230	161	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1380	4630	mg/kg	SO-028-LF	78/78	N/A	4630	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	86.1 J	1050	mg/kg	SO-030-LF	78/78	N/A	1050	175	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.021	2.4	mg/kg	LQW-012	78/78	N/A	2.4	0.7	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	4.6 J	158 J	mg/kg	UI-TT-10, SO-W02-UI	76/78	7 - 9	158	9	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	380 J	1400 J	mg/kg	LQW-010	14/78	720 - 1734	1400	1,200 (U)	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.094	2.4	mg/kg	LQW-012	14/59	0.11 - 1	2.4	0.62 (U)	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.066	12.3	mg/kg	SO-045-QW	57/78	0.35 - 2.5	12.3	7.3	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	21	122 J	mg/kg	SO-007-UI	11/78	720 - 1734	122	1,200 (U)	N/A	N/A	N/A	N	NUT

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-28-0	Thallium	0.064	1.8 J	mg/kg	SO-043-LF, SO-046-DF	28/78	0.29 - 1.4	1.8	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	8	82.9 J	mg/kg	SO-W06-DF	77/78	12	82.9	21.3	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	19	2560 J	mg/kg	SO-W06-DF	78/78	N/A	2560	74.5	2300 N	N/A	N/A	Y	ASL

Notes:
Site-wide surface soils data set does not include surface soils collected from Nunes Parcel or the wetland areas. Separate COPC tables are presented for soils data from the Nunes Parcel and wetland areas.
N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
T = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.
U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for dibutyl phthalate has been used for di-n-octylphthalate.
PRG for diethylphthalate has been used for dimethylphthalate.
PRG for endosulfan has been used for endosulfan I, endosulfan II, and endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Landfill																		
	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroetha	0.62	J	0.69	J	ug/m3	AR-FD1	3/4	7.77	0.69	N/A	3100	N	N/A	N/A	N	BSL
	75-34-3	1,1-Dichloroethane	9.72	J	9.72	J	ug/m3	AR-002-LF	1/4	0.2	9.72	N/A	1.5	C	N/A	N/A	Y	ASL
	76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroet	1.33	J	174.85		ug/m3	AR-002-LF	2/4	0.63	174.9	N/A	N/A		N/A	N/A	Y	NSL
	95-50-1	1,2-Dichlorobenzene	0.58	J	122.7		ug/m3	AR-002-LF	2/4	0.43	122.7	N/A	21	N	N/A	N/A	Y	ASL
	108-67-8	1,3,5-Trimethylbenzene	1.23	J	16.69	J	ug/m3	AR-002-LF	4/4	N/A	16.7	N/A	0.63	N	N/A	N/A	Y	ASL
	541-73-1	1,3-Dichlorobenzene	0.8	J	251.53		ug/m3	AR-002-LF	2/4	0.49	251.5	N/A	0.22	C	N/A	N/A	Y	ASL
	106-46-7	1,4-Dichlorobenzene	0.45	J	674.85		ug/m3	AR-002-LF	4/4	N/A	674.9	N/A	0.22	C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	5.3		6.18		ug/m3	AR-003-LF	3/4	11.78	6.2	N/A	520	N	N/A	N/A	N	BSL
	622-96-8	4-Ethyltoluene	2.06		103.07		ug/m3	AR-002-LF	4/4	N/A	103.1	N/A	N/A		N/A	N/A	Y	NSL
	67-64-1	Acetone	22.77		40.33	J	ug/m3	AR-002-LF	4/4	N/A	40.3	N/A	3200	N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.8		1722.7		ug/m3	AR-002-LF	4/4	N/A	1722.7	N/A	0.31	C	N/A	N/A	Y	ASL
	95-63-6	1,2,4-Trimethylbenzene	3.09		112.88		ug/m3	AR-002-LF	4/4	N/A	112.9	N/A	0.73	N	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.44	J	0.44	J	ug/m3	AR-001-LF	1/4	0.44 - 12.43	0.4	N/A	73	N	N/A	N/A	N	BSL
	56-23-5	Carbon tetrachloride	0.61	J	0.67	J	ug/m3	AR-003-LF	3/4	6.13	0.7	N/A	0.16	C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.43	J	3959.1		ug/m3	AR-002-LF	4/4	N/A	3959.1	N/A	5.2	N	N/A	N/A	Y	ASL
	75-00-3	Chloroethane	29.24		29.24		ug/m3	AR-002-LF	1/4	0.37	29.2	N/A	1000	N	N/A	N/A	N	BSL
	74-87-3	Chloromethane	1.06		1.15		ug/m3	AR-001-LF	3/4	4.17	1.2	N/A	1.4	C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	21.03		21.03		ug/m3	AR-002-LF	1/4	0.2	21.0	N/A	6.3	N	N/A	N/A	Y	ASL
	75-71-8	Dichlorodifluoromethane	2.9		33.37		ug/m3	AR-002-LF	4/4	N/A	33.4	N/A	21	N	N/A	N/A	Y	ASL
	100-41-4	Ethylbenzene	3.28		1304.7		ug/m3	AR-002-LF	4/4	N/A	1304.7	N/A	0.97	C	N/A	N/A	Y	ASL
	75-09-2	Methylene chloride	0.38	J	6.26		ug/m3	AR-003-LF	3/4	5.56	6.3	N/A	5.2	C	N/A	N/A	Y	ASL
	100-42-5	Styrene	0.36	J	1.68		ug/m3	AR-FD1	3/4	4.91	1.7	N/A	100	N	N/A	N/A	N	BSL
	108-88-3	Toluene	2.26		71.49		ug/m3	AR-002-LF	4/4	N/A	71.5	N/A	520	N	N/A	N/A	N	BSL
	156-60-5	trans-1,2-Dichloroethene	22.61		22.61		ug/m3	AR-002-LF	1/4	0.28	22.6	N/A	6.3	N	N/A	N/A	Y	ASL
	79-01-6	Trichloroethene	1.38		23.39		ug/m3	AR-001-LF	4/4	N/A	23.4	N/A	1.2	C	N/A	N/A	Y	ASL
	75-69-4	Trichlorofluoromethane	1.6	J	1.78	J	ug/m3	AR-003-LF	3/4	5.73	1.8	N/A	73	N	N/A	N/A	N	BSL
	75-01-4	Vinyl Chloride	0.21	J	211.29		ug/m3	AR-002-LF	3/4	0.15	211	N/A	0.16	C	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	8.1		629.86		ug/m3	AR-002-LF	4/4	N/A	629.86	N/A	10	N	N/A	N/A	Y	ASL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:
Data represent air vent data from landfill which are used for COPC screening purposes only.
N/A = Not available/Not applicable
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used.
[3] Site-specific background air data are not available. If other appropriate background values are identified in the future, these may be considered in the risk characterization portion of the risk assessment.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for 1,4-Dichlorobenzene has been used for 1,3-Dichlorobenzene.
PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Nunes Parcel															
	91-57-6	2-Methylnaphthalene	0.058 J	0.21 J	mg/kg	SO-037-NP	16/18	0.35 - 0.39	0.21	0.27 (J)	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.068 J	1.3	mg/kg	SO-037-NP	15/18	0.35 - 0.41	1.3	0.88	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.06 J	0.68 J	mg/kg	SO-057-NP	15/21	0.14	0.68	0.73	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.066 J	2.1	mg/kg	SO-037-NP	18/21	0.14	2.1	4	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.09 J	5.4	mg/kg	SO-037-NP	21/21	N/A	5.4	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.14	6.9	mg/kg	SO-037-NP	21/21	N/A	6.9	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.087 J	2.7	mg/kg	SO-037-NP	21/21	N/A	2.7	4.4	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.12 J	3	mg/kg	SO-037-NP	20/21	0.14	3	3.4 (J)	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.081 J	5.8	mg/kg	SO-037-NP	21/21	N/A	5.8	9.3	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.11 J	5.8	mg/kg	SO-037-NP	21/21	N/A	5.8	8.9	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.04 J	0.81	mg/kg	SO-037-NP	19/21	0.14	0.81	0.94 (J)	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.14	16	mg/kg	SO-037-NP	21/21	N/A	16	15	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.061 J	1.1	mg/kg	SO-037-NP	16/18	0.35 - 0.39	1.1	1.2	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.073 J	2.8	mg/kg	SO-037-NP	21/21	N/A	2.8	2.6 (J)	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.065 J	0.7	mg/kg	SO-037-NP	16/18	0.35 - 0.39	0.7	0.28 (J)	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.078 J	15	mg/kg	SO-037-NP	21/21	N/A	15	14	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.13 J	14 J	mg/kg	SO-037-NP	21/21	N/A	14	19 (J)	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.04 J	0.067 J	mg/kg	SO-037-NP	3/21	0.14 - 0.54	0.067	0.13 (J)	390 N	N/A	N/A	N	BSL
	106-47-8	4-Chloroaniline	0.34 J	2.4 J	mg/kg	SO-057-NP	4/21	0.14 - 0.54	2.4	0.48 (U)	9 C	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	0.1 J	mg/kg	SO-009-NP	10/21	0.14 - 0.54	0.1	0.2 (J)	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.081 JEB	6.3	mg/kg	SO-033-NP	19/21	0.15 - 0.35	6.3	12	35 C	N/A	N/A	N	BSL
	85-68-7	Butylbenzylphthalate	0.064 J	0.43 J	mg/kg	SO-051-NP	16/21	0.14 - 0.4	0.43	3.5 (U)	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.046 J	1.6 J	mg/kg	SO-037-NP	17/21	0.14 - 0.35	1.6	0.55	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.045 J	0.76	mg/kg	SO-037-NP	15/21	0.14 - 0.41	0.76	0.44	N/A	N/A	N/A	Y	NSL
	84-74-2	Di-n-butylphthalate	0.047 J	0.11 J	mg/kg	SO-036-NP	14/21	0.14 - 0.46	0.11	0.48 (U)	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.056 J	0.056 J	mg/kg	SO-033-NP	1/21	0.14 - 0.54	0.056	0.51 (J)	610 N	N/A	N/A	N	BSL
	78-59-1	Isophorone	0.1 J	0.1 J	mg/kg	SO-051-NP	1/21	0.14 - 0.46	0.1	0.37 (U)	510 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.006 J	0.033 J	mg/kg	SO-058-WT	2/21	0.0013 - 1.3	0.033	0.011 (J)	2800 N	N/A	N/A	N	BSL
	591-78-6	2-Hexanone	0.005 J	0.005 J	mg/kg	SO-033-NP	1/21	0.0013 - 1.3	0.005	0.27 (J)	530 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.034 J	0.41 J	mg/kg	SO-058-WT	3/21	0.0032 - 1.3	0.41	0.009 (U)	6100 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.005 J	1.1 J	mg/kg	SO-052-NP	5/21	0.0013 - 0.015	1.1	0.014 (U)	7800 N	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.36 JTB	0.36 JTB	mg/kg	SO-052-NP	1/21	0.0032 - 0.025	0.36	0.009 (U)	11 C	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.015 J	0.015	mg/kg	SO-009-NP	1/21	0.0013 - 1.3	0.015	0.014 (U)	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.002 J	0.003 J	mg/kg	SO-050-NP	5/21	0.0013 - 1.3	0.003	0.0009 (J)	500 N	N/A	N/A	N	BSL
	75-69-4	Trichlorofluoromethane	0.002 J	0.005 J	mg/kg	SO-008-NP	3/21	0.0013 - 1.3	0.005	0.009 (U)	80 N	N/A	N/A	N	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	1330-20-7	Xylene (Total)	0.002	J	0.002	J	mg/kg	SO-051-NP	1/21	0.0038 - 1.3	0.002	0.014 (U)	60	N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.065		0.1	J	mg/kg	SO-035-NP,SO-037-NP	3/18	0.037 - 0.054	0.1	0.2 (U)	0.11	N	N/A	N/A	N	BSL
	11096-82-5	Aroclor-1260	0.14	J	0.55	J	mg/kg	SO-055-NP	13/21	0.014 - 0.039	0.55	0.2 (U)	0.22	C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0047		0.02	J	mg/kg	SO-033-NP	13/16	0.0035 - 0.0041	0.02	0.0081 (J)	2	C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0031	J	0.023	J	mg/kg	SO-033-NP	16/17	0.0035	0.023	0.012	1.4	C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.023		0.087		mg/kg	SO-033-NP	2/8	0.0035 - 0.02	0.087	0.052	1.7	C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.0018	J	0.018	J	mg/kg	SO-052-NP	13/14	0.0018	0.018	0.56 (J)	1.6	C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0031	J	0.31		mg/kg	SO-052-NP	17/18	0.0035	0.31	0.033	0.03	C	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.0025	J	0.0068		mg/kg	SO-051-NP	2/18	0.0035 - 0.0046	0.0068	0.020 (U)	37	N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.008		0.008		mg/kg	SO-017-NP	1/5	0.0035 - 0.019	0.008	0.0075 (J)	37	N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.01	J	0.01	J	mg/kg	SO-033-NP	1/8	0.0035 - 0.0046	0.01	0.0063 (J)	1.8	N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.006	J	0.016	J	mg/kg	SO-052-NP	10/12	0.0018 - 0.0099	0.016	0.6	1.6	C	N/A	N/A	N	BSL
	1746-01-6	Dioxin TEQ	0.000026		0.000045		mg/kg	LNP-007	2/2	N/A	0.000045	NA	4.5E-06	C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	3380		16300		mg/kg	SO-058-WT	21/21	N/A	16300	6350	7700	N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.19	J	1.6	J	mg/kg	SO-107-NP	4/21	0.00064 - 0.016	1.6	12 (U)	3.1	N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	3.3		27.7		mg/kg	SO-058-WT	21/21	N/A	27.7	9.5	0.39	C	N/A	N/A	Y	ASL
	7440-39-3	Barium	21		546		mg/kg	SO-033-NP	20/21	0.043	546	49.6	1500	N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.18		2.2		mg/kg	SO-050-NP	21/21	N/A	2.2	0.5	16	N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.13	J	18.7		mg/kg	SO-058-WT	21/21	N/A	18.7	1.9	7	N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	650		12800		mg/kg	SO-035-NP	20/21	1.1	12800	1180	N/A		N/A	N/A	N	NUT
	7440-47-3	Chromium	11		349		mg/kg	SO-050-NP	21/21	N/A	349	89.6	23	N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.7		19.3		mg/kg	SO-058-WT	10/21	0.011 - 0.014	19.3	4.7 (J)	2.3	N	N/A	N/A	Y	ASL
	7440-50-8	Copper	22	J	831		mg/kg	SO-033-NP	21/21	N/A	831	75.1	310	N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.34	J	5.1		mg/kg	SO-053-NP	14/21	0.000089 - 0.00023	5.1	0.63 (U)	160	N	N/A	N/A	N	BSL
	7439-89-6	Iron	7600		38800		mg/kg	SO-058-WT	21/21	N/A	38800	11800	5500	N	N/A	N/A	Y	ASL
	7439-92-1	Lead	28		2380		mg/kg	SO-033-NP	21/21	N/A	2380	161	40	N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1280		5110		mg/kg	SO-058-WT	21/21	N/A	5110	2070	N/A		N/A	N/A	N	NUT
	7439-96-5	Manganese	80		1940		mg/kg	SO-058-WT	21/21	N/A	1940	175	180	N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.03		1	J	mg/kg	SO-052-NP	21/21	N/A	1	0.7	0.78	N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	7.1		56.4	J	mg/kg	SO-058-WT	18/21	0.009	56.4	9	160	N	N/A	N/A	N	BSL
	7440-09-7	Potassium	550		1660		mg/kg	SO-058-WT	12/21	1.065 - 1.362	1660	1,200 (U)	N/A		N/A	N/A	N	NUT
	7782-49-2	Selenium	0.81	J	1.2		mg/kg	SO-033-NP	5/11	0.00035 - 0.00082	1.2	0.62 (U)	39	N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.071	J	4.4		mg/kg	SO-009-NP	17/21	0.000163 - 0.002	4.4	7.3	39	N	N/A	N/A	N	BSL
	7440-23-5	Sodium	32	J	77	J	mg/kg	SO-107-NP	3/21	1 - 1.4	77	1,200 (U)	N/A		N/A	N/A	N	NUT

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-28-0	Thallium	1.1 J	3.3 J	mg/kg	SO-050-NP	15/21	0.000086 - 0.0011	3.3	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	9.8	43.4	mg/kg	SO-050-NP	19/21	0.011	43.4	21.3	55 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	37	970 J	mg/kg	SO-033-NP	21/21	N/A	970	74.5	2300 N	N/A	N/A	N	BSL

Notes:
Only includes surface soils data collected from Nunes Parcel.
N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
T = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.
U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for dibutyl phthalate has been used for di-n-octylphthalate.
PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.
PRG for endrin has been used for endrin ketone.
PRG for methyl isobutyl ketone has been used for 2-hexanone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Nunes Parcel																		
	91-57-6	2-Methylnaphthalene	0.071	J	0.9	J	mg/kg	SO-034-NP	6/16	0.14 - 0.39	0.9	0.27 (J)	31	N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.26	J	2.4		mg/kg	SO-105-NP	5/16	0.14 - 4.2	2.4	0.88	340	N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.087	J	1.8		mg/kg	SO-105-NP	4/16	0.14 - 4.2	1.8	0.73	3.9	C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.084	J	6.4		mg/kg	SO-105-NP	9/16	0.14 - 4.2	6.4	4	1700	N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.089	J	21		mg/kg	SO-105-NP	12/16	0.14 - 0.17	21	7.5	0.015	C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12	J	24		mg/kg	SO-105-NP	13/16	0.14 - 0.15	24	7.8	0.15	C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.083	J	13		mg/kg	SO-105-NP	11/16	0.14 - 4.2	13	4.4	3.9	C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.093	J	4.9		mg/kg	SO-105-NP	9/16	0.14 - 0.17	4.9	3.4 (J)	1.5	C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.083	J	22		mg/kg	SO-105-NP	12/16	0.14 - 0.17	22	9.3	0.15	C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.092	J	18		mg/kg	SO-105-NP	12/16	0.14 - 0.17	18	8.9	15	C	N/A	N/A	Y	ASL
	53-70-3	Dibenz(a,h)anthracene	0.051	J	4.4		mg/kg	SO-105-NP	8/16	0.14 - 0.17	4.4	0.94 (J)	0.015	C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.12	J	39		mg/kg	SO-105-NP	13/16	0.14 - 0.15	39	15	230	N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.048	J	2.1		mg/kg	SO-105-NP	7/16	0.14 - 0.17	2.1	1.2	230	N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.088	J	12		mg/kg	SO-105-NP	10/16	0.14 - 0.17	12	2.6 (J)	0.15	C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.049	J	0.9	J	mg/kg	SO-108-NP	7/16	0.14 - 0.17	0.9	0.28 (J)	3.9	C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.092	J	21		mg/kg	SO-105-NP	12/16	0.14 - 0.17	21	14	3.9	C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11	J	32		mg/kg	SO-105-NP	13/16	0.14 - 0.15	32	19 (J)	170	N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11	J	0.12	J	mg/kg	SO-035-NP,SO-105-NP	3/16	0.14 - 4.2	0.12	0.13 (J)	390	N	N/A	N/A	N	BSL
	105-67-9	2,4-Dimethylphenol	0.08	J	0.08	J	mg/kg	SO-035-NP	1/16	0.14 - 4.2	0.08	0.48 (U)	120	N	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.081	J	0.12	J	mg/kg	SO-105-NP	3/16	0.14 - 4.2	0.12	0.48 (U)	31	N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.08	JEB	0.08	JEB	mg/kg	SO-105-NP	1/16	0.14 - 4.2	0.08	0.48 (U)	780	N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.15	J	0.54	J	mg/kg	SO-105-NP	2/16	0.14 - 4.2	0.54	0.2 (J)	780	N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.085	J	1300		mg/kg	SO-034-NP	11/16	0.14 - 0.17	1300	12	35	C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	9.2		9.2		mg/kg	SO-034-NP	1/16	0.14 - 0.39	9.2	3.5 (U)	260	C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.15	J	2		mg/kg	SO-105-NP	6/16	0.14 - 4.2	2	0.55	N/A		N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056	J	0.92		mg/kg	SO-105-NP	6/16	0.14 - 4.2	0.92	0.44	N/A		N/A	N/A	Y	NSL
	84-74-2	Di-n-butylphthalate	0.048	J	11		mg/kg	SO-034-NP	2/16	0.14 - 0.39	11	0.48 (U)	610	N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.098	J	270	J	mg/kg	SO-034-NP	3/16	0.14 - 0.39	270	0.51 (J)	610	N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	4.1	J	4.1	J	mg/kg	SO-034-NP	1/16	0.14 - 0.39	4.1	0.48 (U)	99	C	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.003	J	0.003	J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.003	0.004 (J)	25	N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008	J	0.008	J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.008	0.014 (U)	2.6	C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.003	J	0.096	J	mg/kg	SO-034-NP	6/16	0.0011 - 0.11	0.096	0.011 (J)	2800	N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053		0.15		mg/kg	SO-034-NP	4/16	0.0028 - 1.6	0.15	0.27 (J)	6100	N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001	J	0.31	J	mg/kg	SO-034-NP	3/16	0.0011 - 0.11	0.31	0.014 (U)	1.1	C	N/A	N/A	N	BSL

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	75-15-0	Carbon disulfide	0.001	J	0.027		mg/kg	SO-035-NP	4/16	0.0011 - 0.11	0.027	0.014 (U)	67	N	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.018	J	0.018	J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.018	0.014 (U)	31	N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001	J	0.001	J	mg/kg	SO-036-NP	1/16	0.0011 - 0.11	0.001	0.014 (U)	78	N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.003	J	0.35	J	mg/kg	SO-034-NP	2/16	0.0011 - 0.11	0.35	0.014 (U)	720	N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002	J	0.08	J	mg/kg	SO-034-NP	2/16	0.0028 - 0.28	0.08	0.014 (U)	720	N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003	J	0.003	J	mg/kg	SO-033-NP	1/16	0.0011 - 0.11	0.003	0.014 (U)	19	N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02	J	0.02	J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.02	0.014 (U)	5.7	C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.029		0.029		mg/kg	SO-034-NP	1/16	0.0028 - 0.28	0.029	0.014 (U)	220	N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008	J	0.008	J	mg/kg	SO-033-NP	1/16	0.0011 - 1.2	0.008	0.014 (U)	7800	N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.0023		0.0023		mg/kg	SO-103-NP	1/16	0.0011 - 0.11	0.0023	0.014 (U)	0.57	C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001	J	13		mg/kg	SO-102-NP	4/16	0.001 - 0.11	13	0.0009 (J)	500	N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.18	J	0.44		mg/kg	SO-102-NP	2/16	0.0034 - 0.34	0.44	0.014 (U)	60	N	N/A	N/A	N	BSL
	12672-29-6	Aroclor-1248	0.36		0.36		mg/kg	SO-102-NP	1/10	0.014 - 0.016	0.36	0.2 (U)	0.22	C	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06		1	J	mg/kg	SO-034-NP	11/16	0.014 - 0.039	1	0.2 (U)	0.11	N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.036		0.29		mg/kg	SO-105-NP	8/10	0.014 - 0.015	0.29	0.2 (U)	0.22	C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0013		0.059	J	mg/kg	SO-035-NP	11/13	0.00072 - 0.0035	0.059	0.0081 (J)	2	C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0008	J	0.021	J	mg/kg	SO-034-NP	9/12	0.00071 - 0.0035	0.021	0.012	1.4	C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.0012	J	0.014	J	mg/kg	SO-035-NP	7/13	0.00072 - 0.0042	0.014	0.052	1.7	C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.0008	J	0.01	J	mg/kg	SO-035-NP	7/13	0.00072 - 0.0022	0.01	0.56 (J)	1.6	C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0051		0.25		mg/kg	SO-100-NP	8/13	0.00072 - 0.0042	0.25	0.033	0.03	C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.0015		0.002	J	mg/kg	SO-105-NP	2/13	0.00071 - 0.0022	0.002	0.013 (J)	37	N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.029	J	0.029	J	mg/kg	SO-035-NP	1/13	0.00071 - 0.0042	0.029	0.0075 (J)	37	N	N/A	N/A	N	BSL
	72-20-8	Endrin	0.0044		0.0071	J	mg/kg	SO-034-NP	2/13	0.00071 - 0.0039	0.0071	0.02 (U)	1.8	N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.013		0.013		mg/kg	SO-034-NP	1/13	0.00071 - 0.0039	0.013	0.0071 (J)	1.8	N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.0048	J	0.016	J	mg/kg	SO-108-NP	4/12	0.00072 - 0.0042	0.016	0.0063 (J)	1.8	N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00085	J	0.0028		mg/kg	SO-100-NP	4/10	0.00072 - 0.002	0.0028	0.6	1.6	C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.026	J	0.035	J	mg/kg	SO-105-NP	2/12	0.0024 - 0.022	0.035	0.034	31	N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	3900		9800		mg/kg	SO-105-NP	16/16	N/A	9800	6350	7700	N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.13	J	0.74	J	mg/kg	SO-108-NP	9/16	0.091 - 15	0.74	12 (U)	3.1	N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	2.8		16	J	mg/kg	SO-108-NP	16/16	N/A	16	9.5	0.39	C	N/A	N/A	Y	ASL
	7440-39-3	Barium	12		1050		mg/kg	SO-033-NP	13/16	43 - 47	1050	49.6	1500	N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.15	J	0.98	J	mg/kg	SO-105-NP	16/16	N/A	0.98	0.5	16	N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.057	J	6		mg/kg	SO-034-NP	15/16	0.036	6	1.9	7	N	N/A	N/A	N	BSL
	7440-70-2	Calcium	330		38700		mg/kg	SO-033-NP	16/16	N/A	38700	1180	N/A		N/A	N/A	N	NUT
	7440-47-3	Chromium	5.3		209	J	mg/kg	SO-034-NP	16/16	N/A	209	89.6	23	N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.2		5		mg/kg	SO-105-NP	10/16	11 - 13	5	4.7 (J)	2.3	N	N/A	N/A	Y	ASL

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-50-8	Copper	5.7 J	644	mg/kg	SO-034-NP	16/16	N/A	644	75.1	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.15	1.6	mg/kg	SO-035-NP	10/16	0.087 - 0.19	1.6	0.63 (U)	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	6200	54500	mg/kg	SO-034-NP	16/16	N/A	54500	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	10	5460	mg/kg	SO-033-NP	16/16	N/A	5460	161	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1300	4270	mg/kg	SO-033-NP	16/16	N/A	4270	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	89	666 J	mg/kg	SO-034-NP	16/16	N/A	666	175	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.011	1.7	mg/kg	SO-105-NP	15/16	N/A	1.7	0.7	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	4.6	122	mg/kg	SO-034-NP	13/16	9	122	9	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	430	800	mg/kg	SO-105-NP	10/16	1076 - 1269	800	1200 (U)	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.48	1.2 J	mg/kg	SO-033-NP,SO-036-NP	8/16	0.35 - 0.69	1.2	0.62 (U)	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.039 J	15.2	mg/kg	SO-034-NP	12/16	0.036 - 2	15.2	7.3	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	27 J	310 J	mg/kg	SO-105-NP	10/16	1076 - 1269	310	1200 (U)	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	1.1 J	7 J	mg/kg	SO-035-NP	6/16	0.087 - 0.1	7	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.5	101	mg/kg	SO-035-NP	15/16	11	101	21.3	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	20	2470 J	mg/kg	SO-034-NP	16/16	N/A	2470	74.5	2300 N	N/A	N/A	Y	ASL

Notes:
Only includes subsurface soils data collected from Nunes Parcel.
N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.
U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for dibutyl phthalate has been used for di-n-octylphthalate.
PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide (Excluding Wetlands)															
	91-57-6	2-Methylnaphthalene	0.0036	0.47	mg/kg	T05BR-005	56/94	0.0023 - 0.63	0.47	0.43	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.003	0.85	mg/kg	SE-047-BR	63/94	0.0021 - 0.63	0.85	0.18	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.007	0.56	mg/kg	T05BR-005	82/94	0.0023 - 0.52	0.56	0.47	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0048	2.9	mg/kg	BD062105	88/94	0.0023 - 0.52	2.9	0.96	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.0063	6.7	mg/kg	BD062105	92/94	0.0023 - 0.0037	6.7	2.7	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.011	4.3	mg/kg	SE-027-BR	87/89	0.0023 - 0.0037	4.3	2.6	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0064	2.9	mg/kg	SE-053-WT	91/94	0.0023 - 0.52	2.9	1.9	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.004	3.6	mg/kg	BD062105	91/94	0.0023 - 0.004	3.6	2.4	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.0045	7.1	mg/kg	BD062105	92/94	0.0023 - 0.0037	7.1	2.8	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.0076	6.9	mg/kg	BD062105	93/94	0.0037	6.9	2.8	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0058	0.92	mg/kg	BD062105	74/94	0.0023 - 1.1	0.92	0.7	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.008	10	mg/kg	BD062105	92/94	0.0023 - 0.0037	10	4.9	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0024	0.7	mg/kg	SE-047-BR	75/94	0.0023 - 0.63	0.7	0.32	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0052	2.5	mg/kg	SE-053-WT, T05BR-005	91/94	0.0023 - 0.52	2.5	1.8	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0041	0.7	mg/kg	SE-047-BR	60/94	0.0023 - 0.63	0.7	0.35	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0091	5.3	mg/kg	SE-047-BR	91/94	0.0023 - 0.004	5.3	2.4	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.0038	13	mg/kg	BD062105	93/94	0.0037	13	4.2	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.042 J	0.088 J	mg/kg	BD062105	6/94	0.08 - 0.16	0.088	0.065	390 N	N/A	N/A	N	BSL
	95-48-7	2-Methylphenol	0.0075	0.016	mg/kg	T05PD-002	5/94	0.0016 - 0.66	0.016	0.016	310 N	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.054 J	0.068 J	mg/kg	SE-FD-13	4/94	0.08 - 0.66	0.068	0.074	31 N	N/A	N/A	N	BSL
	100-02-7	4-Nitrophenol	0.26	0.26	mg/kg	T05BR-003	1/94	0.08 - 1.7	0.26	ND	24 N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.044 J	0.088 J	mg/kg	SE-FD-13	4/94	0.08 - 0.66	0.088	ND	780 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	1.7	mg/kg	SE-FD-13	37/94	0.08 - 0.63	1.7	0.48	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.043 J	58 J	mg/kg	SE-074-LF	60/94	0.1 - 0.75	58	5.9	35 C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	0.064 J	0.2 J	mg/kg	SE-032-BR	9/94	0.08 - 0.66	0.2	0.18	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.034 J	0.88 J	mg/kg	SE-025-BR	51/94	0.08 - 0.61	0.88	0.33	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.044 J	0.5	mg/kg	SE-047-BR	27/94	0.08 - 0.63	0.5	0.086	N/A	N/A	N/A	Y	NSL
	131-11-3	Dimethylphthalate	0.062 J	0.062 J	mg/kg	SE-013-WT	1/94	0.08 - 0.66	0.062	ND	4900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.043 J	2.8	mg/kg	SE-083-BR	9/94	0.08 - 0.63	2.8	ND	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.075 J	11 J	mg/kg	SE-029-BR	12/94	0.08 - 0.66	11	0.15	610 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	0.05 J	1.4	mg/kg	SE-078-UI	4/94	0.08 - 0.66	1.4	ND	99 C	N/A	N/A	N	BSL
	87-86-5	Pentachlorophenol	0.18	0.18	mg/kg	T05BR-003	1/90	0.08 - 3	0.18	ND	3 C	N/A	N/A	N	BSL
	108-95-2	Phenol	0.041 J	1.6 J	mg/kg	T05WB-002	11/94	0.08 - 0.66	1.6	0.18	1800 N	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.002 J	0.002 J	mg/kg	SE-019-LF	1/94	0.0013 - 0.046	0.002	0.002	25 N	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.001 J	0.009 J	mg/kg	SE-020-LF	4/94	0.0013 - 0.046	0.009	ND	200 N	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	106-46-7	1,4-Dichlorobenzene	0.00051 J	0.02	mg/kg	SE-020-LF	7/94	0.0017 - 0.046	0.02	0.00046	2.6 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.003 J	0.75 J	mg/kg	SE-078-UI	58/94	0.0017 - 0.033	0.75	0.056	2800 N	N/A	N/A	N	BSL
	108-10-1	4-Methyl-2-pentanone	0.13 J	0.13 J	mg/kg	SE-078-UI	1/94	0.0013 - 0.046	0.13	ND	530 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.003 J	2.3 J	mg/kg	SE-078-UI	47/94	0.0049 - 0.04	2.3	0.15	6100 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.00056 J	0.006 J	mg/kg	SE-078-UI	2/94	0.0013 - 0.046	0.006	ND	1.1 C	N/A	N/A	N	BSL
	75-15-0	Carbon disulfide	0.00088 J	0.044 J	mg/kg	SE-078-UI	29/94	0.0017 - 0.038	0.044	0.013	67 N	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.00081 J	0.053 J	mg/kg	SE-069-NP	12/94	0.0017 - 0.046	0.053	ND	31 N	N/A	N/A	N	BSL
	75-00-3	Chloroethane	0.014 J	0.014 J	mg/kg	SE-FD-12	1/94	0.0013 - 0.046	0.014	ND	1500 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.004 J	0.006 J	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.006	ND	78 N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.001 J	0.036 J	mg/kg	SE-FD-12	7/94	0.0013 - 0.046	0.036	ND	720 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.00038 J	0.012 J	mg/kg	SE-020-LF	2/94	0.0017 - 0.046	0.012	ND	720 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.00054	0.0034	mg/kg	T05WB-002	8/94	0.0013 - 0.046	0.0034	0.0053	5.7 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.002 J	0.003 J	mg/kg	SE-020-LF	2/94	0.0013 - 0.046	0.003	ND	220 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.001 J	0.038 J	mg/kg	SE-079-UI	7/94	0.0013 - 0.046	0.038	0.001	7800 N	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.004 JEB	0.061 J	mg/kg	SE-079-UI	8/94	0.0037 - 0.087	0.061	ND	11 C	N/A	N/A	N	BSL
	100-42-5	Styrene	0.00061	0.0013	mg/kg	T05WB-002	2/94	0.0013 - 0.046	0.0013	0.002	650 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.008 J	0.011	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.011	ND	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0005 J	0.038 J	mg/kg	SE-079-UI	23/94	0.0013 - 0.034	0.038	0.00051	500 N	N/A	N/A	N	BSL
	79-01-6	Trichloroethene	0.002 J	0.003 J	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.003	0.0024	2.8 C	N/A	N/A	N	BSL
	75-69-4	Trichlorofluoromethane	0.001 J	0.002 J	mg/kg	SE-005-UI, SE-067-BR	3/94	0.0013 - 0.046	0.002	ND	80 N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.001 J	0.004 J	mg/kg	SE-078-UI	7/94	0.004 - 0.046	0.004	0.001	60 N	N/A	N/A	N	BSL
	53469-21-9	Aroclor-1242	0.25 J	0.25 J	mg/kg	SE-030-BR	1/92	0.0065 - 0.036	0.25	ND	0.22 C	N/A	N/A	Y	ASL
	12672-29-6	Aroclor-1248	0.066	0.13	mg/kg	T05BR-002	2/92	0.0066 - 0.036	0.13	ND	0.22 C	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.0094 J	2.8	mg/kg	SE-026-BR	19/92	0.0065 - 0.03	2.8	1.4	0.11 N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.0057 J	0.76	mg/kg	T05BR-005	60/93	0.0071 - 0.012	0.76	0.65	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.00041 J	0.035 J	mg/kg	SE-051-DF	59/86	0.00073 - 0.0081	0.035	0.018	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.00045 J	0.037 J	mg/kg	SE-081-BR	55/79	0.00065 - 0.0012	0.037	0.016	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.00072 J	0.005 J	mg/kg	SE-010-WT	13/64	0.00059 - 0.0093	0.005	0.0027	1.7 C	N/A	N/A	N	BSL
	309-00-2	Aldrin	0.0014 J	0.0014 J	mg/kg	SE-008-BR	1/91	0.00034 - 0.0009	0.0014	ND	0.029 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.00029 J	0.039 J	mg/kg	SE-079-UI	40/86	0.00034 - 0.00082	0.039	0.0063	1.6 C	N/A	N/A	N	BSL
	319-85-7	Beta-BHC	0.00051 J	0.0029	mg/kg	SE-016-WT	2/89	0.00034 - 0.0009	0.0029	ND	0.27 C	N/A	N/A	N	BSL
	319-86-8	Delta-BHC	0.00097	0.0016	mg/kg	T05BR-005	2/92	0.00034 - 0.0009	0.0016	0.0017	0.27 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0004 J	0.074 J	mg/kg	SE-051-DF	37/84	0.00066 - 0.0081	0.074	0.017	0.03 C	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.0014	0.0014	mg/kg	SE-064-BR	1/91	0.00059 - 0.0013	0.0014	ND	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.001 J	0.01 J	mg/kg	SE-080-UI	16/80	0.00059 - 0.0093	0.01	0.013	37 N	N/A	N/A	N	BSL
	72-20-8	Endrin	0.0086 J	0.0086 J	mg/kg	SE-087-UI	1/91	0.00059 - 0.0013	0.0086	ND	1.8 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0012 J	0.0095	mg/kg	SE-081-BR	13/77	0.00059 - 0.0045	0.0095	0.0027	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.00075 J	0.0021 J	mg/kg	T05BR-006	9/69	0.00059 - 0.0093	0.0021	0.02	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00034 J	0.035 J	mg/kg	SE-FD-13	31/67	0.00034 - 0.0042	0.035	0.0065	1.6 C	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	1024-57-3	Heptachlor epoxide	0.027 J	0.027 J	mg/kg	SE-080-UI	1/92	0.00034 - 0.0009	0.027	ND	0.053 C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.0045 J	0.016 J	mg/kg	SE-051-DF	8/88	0.00059 - 0.0066	0.016	ND	31 N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	1800	36500	mg/kg	SE-055-WT	94/94	N/A	36500	12	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.2	18.9	mg/kg	SE-001-UI	44/94	0.1 - 58	18.9	0.00076	3.1 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	1.1	92.3	mg/kg	SE-041-BR	93/94	0.44	92.3	0.012	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	8.7	617	mg/kg	SE-001-UI	62/94	0.15 - 76	617	0.14	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.081	1.7	mg/kg	SE-079-UI	53/94	0.063 - 1.9	1.7	0.00088	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.09	30.2	mg/kg	SE-069-NP	85/94	0.043 - 0.071	30.2	0.012	7 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	240	8310	mg/kg	SE-055-WT	71/94	990 - 1900	8310	3.3	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	3.7	354	mg/kg	SE-078-UI	94/94	N/A	354	0.12	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	1.1	32.5	mg/kg	SE-055-WT	48/94	9 - 19	32.5	0.012	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	5.7	653	mg/kg	SE-001-UI	92/94	5.5 - 5.8	653	0.18	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.17	5.7	mg/kg	SE-085-UI	18/78	0.16 - 0.84	5.7	ND	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	3600	57000	mg/kg	T05WD-003	94/94	N/A	57000	25	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	3	1760	mg/kg	SE-078-UI	94/94	N/A	1760	0.45	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	680	27400	mg/kg	SE-055-WT	81/94	996 - 1900	27400	4.1	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	30	1900	mg/kg	SE-055-WT	94/94	N/A	1900	0.3	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.016	1.1	mg/kg	SE-087-UI	62/94	0.045 - 0.088	1.1	0.00054	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	3	82.7	mg/kg	SE-055-WT	66/94	7.3 - 15	82.7	0.052	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	310	13500	mg/kg	SE-055-WT	34/94	920 - 1904	13500	1.5	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.22	31.2	mg/kg	SE-026-BR	69/94	0.6 - 1.9	31.2	0.0025	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.08	23.3	mg/kg	SE-079-UI	91/94	2.3 - 3.7	23.3	0.0052	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	28	290	mg/kg	T05WB-002	16/94	860 - 1904	290	2.5	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	0.023	1.3	mg/kg	SE-041-BR	25/94	0.35 - 1.1	1.3	0.0004	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	3.4	86.6	mg/kg	SE-055-WT	71/94	9.9 - 19	86.6	0.031	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	20	1470	mg/kg	SE-004-UI	94/94	N/A	1470	0.68	2300 N	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:
N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for beta-hexachlorocyclohexane has been used for delta-BHC.
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for dibutyl phthalate has been used for di-n-octylphthalate.
PRG for diethylphthalate has been used for dimethylphthalate.
PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
PRG for p-nitrotoluene has been used for 4-nitrophenol.

[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide (Excluding Wetlands)															
	83-32-9	Acenaphthene	0.0062 J	0.0062 J	ug/L	SW-3 Pratt, SW-4 Pratt	2/2	N/A	0.0062	0.0058	220 N	670	AWQC	N	BSL
	208-96-8	Acenaphthylene	0.01 J	0.013	ug/L	SW-4 Pratt	2/2	N/A	0.013	0.01	0.14 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.013	0.19 J	ug/L	SW-052-WT	4/66	0.1	0.19	0.014	1100 N	8300	AWQC	N	BSL
	50-32-8	Benzo(a)pyrene	0.11	0.34 J	ug/L	SW-020-LF	6/64	0.1	0.34	0.067	0.0029 C	0.0038	AWQC	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.1	0.36	ug/L	SW-020-LF	8/64	0.1	0.36	0.086	0.029 C	0.0038	AWQC	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.1	0.23	ug/L	SW-020-LF	4/64	0.1	0.23	0.13	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.1	0.26	ug/L	SW-020-LF	2/64	0.1	0.26	0.069	0.29 C	0.0038	AWQC	Y	ASL
	56-55-3	Benzo(a)anthracene	0.1	0.2	ug/L	SW-020-LF	5/64	0.1	0.2	0.044	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.072	0.3	ug/L	SW-020-LF	8/66	0.05	0.3	0.074	2.9 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.059 J	0.39	ug/L	SW-020-LF	12/66	0.1	0.39	0.083	150 N	130	AWQC	N	BSL
	86-73-7	Fluorene	0.0068 J	0.0076 J	ug/L	SW-3 Pratt	2/2	N/A	0.0076	0.0064	150 N	1100	AWQC	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.1	0.19	ug/L	SW-020-LF	3/64	0.1	0.19	0.13	0.029 C	0.0038	AWQC	Y	ASL
	91-20-3	Naphthalene	0.0067 J	0.19	ug/L	SW-007-UI	4/66	0.1 - 0.13	0.19	0.0084	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	0.041	0.21	ug/L	SW-075-UI	16/66	0.1	0.21	0.045	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.071	0.42	ug/L	SW-020-LF	14/66	0.1	0.42	0.087	110 N	830	AWQC	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	1.3 J	10	ug/L	SW-051-DF	4/63	5	10	ND	4.8 C	1.2	AWQC	Y	ASL
	84-74-2	Di-n-butylphthalate	1.1 J	1.8 J	ug/L	SW-047-BR	2/63	5	1.8	ND	370 N	2000	AWQC	N	BSL
	86-30-6	N-Nitrosodiphenylamine	1.6 J	1.6 J	ug/L	SW-001-UI	1/63	5	1.6	ND	14 C	3.3	AWQC	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.54	0.54	ug/L	SW-020-LF	1/64	0.5	0.54	ND	0.43 C	63	AWQC	Y	ASL
	67-64-1	Acetone	12 J	12 J	ug/L	SW-024-BR	1/64	5 - 11	12	ND	2200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.34 J	2.4	ug/L	SW-021-NP	3/64	0.5	2.4	ND	0.41 C	2.2	AWQC	Y	ASL
	75-27-4	Bromodichloromethane	0.31 J	0.31 J	ug/L	SW-029-BR	1/64	0.5	0.31	ND	1.1 C	0.55	AWQC	N	BSL
	75-25-2	Bromoform	0.5	0.5	ug/L	SW-027-BR	1/64	0.5	0.5	ND	8.5 C	4.3	AWQC	N	BSL
	108-90-7	Chlorobenzene	1.5	3.5	ug/L	SW-021-NP	2/64	0.5	3.5	ND	9.1 N	130	AWQC	N	BSL
	74-87-3	Chloromethane	0.33 J	0.67	ug/L	SW-016-WT	12/64	0.32 - 0.57	0.67	0.37	1.8 C	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.73 J	0.73 J	ug/L	SW-026-BR	1/64	0.5	0.73	ND	12 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.6	2.6	ug/L	SW-078-UI	2/64	0.5	2.6	ND	230 N	1300	AWQC	N	BSL
	11096-82-5	Aroclor-1260	0.12 J	0.3 J	ug/L	SW-020-LF	2/66	0.023 - 0.056	0.3	ND	0.034 C	0.000064	AWQC	Y	ASL
	72-54-8	4,4'-DDD	0.0047 J	0.025 J	ug/L	SW-020-LF	5/66	0.0011 - 0.0056	0.025	ND	0.28 C	0.00031	AWQC	Y	ASL
	72-55-9	4,4'-DDE	0.0014	0.015 J	ug/L	SW-020-LF	2/66	0.0012 - 0.0056	0.015	0.0014	0.2 C	0.00022	AWQC	Y	ASL
	50-29-3	4,4'-DDT	0.0017	0.0092 J	ug/L	SW-077-UI	2/66	0.0012 - 0.0056	0.0092	ND	0.2 C	0.00022	AWQC	Y	ASL
	319-84-6	alpha-BHC	0.0021 J	0.0026 J	ug/L	SW-4 Pratt	2/66	0.0012 - 0.0028	0.0026	0.0029	0.011 C	0.0026	AWQC	N	BSL
	5103-71-9	alpha-Chlordane	0.0033 J	0.0044 J	ug/L	SW-051-DF	2/66	0.0011 - 0.0028	0.0044	ND	0.19 C	0.0008	AWQC	Y	ASL
	319-85-7	beta-BHC	0.0036 J	0.01 J	ug/L	SW-017-WT	3/64	0.0011 - 0.0028	0.01	ND	0.037 C	0.0091	AWQC	Y	ASL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	60-57-1	Dieldrin	0.0013	0.014 J	ug/L	SW-020-LF	6/66	0.005 - 0.0056	0.014	0.0014	0.0042 C	0.000052	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.011 J	0.013	ug/L	SW-011-WT	2/63	0.0011 - 0.0056	0.013	ND	22 N	62	AWQC	N	BSL
	53494-70-5	Endrin Ketone	0.006 J	0.006 J	ug/L	SW-021-NP	1/66	0.0011 - 0.0056	0.006	ND	1.1 N	N/A	N/A	N	BSL
	58-89-9	Gamma-BHC (Lindane)	0.0043 J	0.0043 J	ug/L	SW-077-UI	1/66	0.0011 - 0.0028	0.0043	ND	0.061 C	0.98	AWQC	N	BSL
	5103-74-2	Gamma-Chlordane	0.0027 J	0.0094	ug/L	SW-077-UI	3/65	0.0011 - 0.0028	0.0094	ND	0.19 C	0.0008	AWQC	Y	ASL
	1024-57-3	Heptachlor Epoxide	0.0029 J	0.0051 J	ug/L	SW-077-UI	3/65	0.0011 - 0.0028	0.0051	ND	0.0074 C	0.000039	AWQC	Y	ASL
		Metals (Total)													
	7429-90-5	Aluminum	23.9 J	20800	ug/L	SW-020-LF	51/66	200	20800	360	3700 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	0.29	17.5	ug/L	SW-020-LF	66/66	N/A	17.5	2.29	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	23	598 J	ug/L	SW-020-LF	15/66	27.7 - 200	598	25	730 N	1000	AWQC	N	BSL
	7440-41-7	Beryllium	0.37 J	1.6 J	ug/L	SW-020-LF	2/66	0.14 - 0.3	1.6	ND	7.3 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.23 J	19.9	ug/L	SW-020-LF	26/66	0.2 - 1.2	19.9	0.82	1.8 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	6800	60600	ug/L	SW-052-WT	66/66	N/A	60600	18100	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.43 J	260	ug/L	SW-020-LF	37/66	0.4 - 2.1	260	2.8	11 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	0.51	9.2 J	ug/L	SW-020-LF	17/66	0.37 - 50	9.2	0.54	1.1 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	7.7	428	ug/L	SW-020-LF	4/66	0.8 - 25	428	10	150 N	1300	AWQC	Y	ASL
	57-12-5	Cyanide	3.2 J	179 J	ug/L	SW-017-WT	7/64	3 - 10	179	ND	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	407 J	54700 J	ug/L	SW-020-LF	55/66	368 - 1940	54700	840	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	1.1 J	330	ug/L	SW-020-LF	38/66	0.8 - 2	330	11	15 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1400	16900 J	ug/L	SW-020-LF	28/66	5000	16900	3280	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	15.4 J	1200 J	ug/L	SW-020-LF	66/66	N/A	1200	126	88 N	50	AWQC	Y	ASL
	7439-97-6	Mercury	0.014	0.46 J	ug/L	SW-043-BR	4/66	0.12 - 0.17	0.46	0.019	0.37 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	1.8 J,J	44.1	ug/L	SW-020-LF	16/66	0.5 - 40	44.1	4.1	73 N	610	AWQC	N	BSL
	7440-09-7	Potassium	1800	26200	ug/L	SW-020-LF	33/66	5000	26200	5640	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.65	0.65	ug/L	SW-3 Pratt Cumberland	1/30	0.5 - 3	0.65	3.7	18 N	170	AWQC	N	BSL
	7440-22-4	Silver	2.1 J	15.2 J	ug/L	SW-020-LF	4/66	0.13 - 10	15.2	ND	18 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	8110	84200 J	ug/L	SW-020-LF	66/66	N/A	84200	59700	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.41 J	60.4	ug/L	SW-020-LF	49/66	0.4 - 50	60.4	2.1	26 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	17.7 J	751	ug/L	SW-020-LF	20/66	3 - 20	751	20.799999	1100 N	7400	AWQC	N	BSL
		Metals (Dissolved)													
	7429-90-5	Aluminum	56	58	ug/L	SW-3 Pratt Cumberland	2/6	6	58	64	3700 N	N/A	N/A	N	BSL
	7440-36-0	Antimony	0.53	0.53	ug/L	SW-3 Pratt Cumberland	1/6	0.5 - 3	0.53	ND	1.5 N	5.6	AWQC	N	BSL
	7440-38-2	Arsenic	0.655	1.87	ug/L	SW-026-BR	6/6	N/A	1.87	1.69	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	18	18	ug/L	SW-3 Pratt Cumberland, SW-4 Pratt Lincoln	2/6	200	18	19	730 N	1000	AWQC	N	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-43-9	Cadmium	0.33	0.34	ug/L	SW-3 Pratt Cumberland	2/6	0.2	0.34	0.37	1.8 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	7000	14200	ug/L	SW-030-BR	6/6	N/A	14200	13800	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.42 J	0.52 J	ug/L	SW-026-BR	2/6	0.4 - 2	0.52	ND	11 N	N/A	N/A	N	BSL
	7440-48-4	Cobalt	0.73 J	0.73 J	ug/L	SW-030-BR	1/6	0.5	0.73	ND	1.1 N	N/A	N/A	N	BSL
	7440-50-8	Copper	3.8	3.9	ug/L	SW-4 Pratt Lincoln	2/6	25	3.9	3.9	150 N	1300	AWQC	N	BSL
	7439-89-6	Iron	210	395	ug/L	SW-030-BR	6/6	N/A	395	291	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	0.61	2.9 J	ug/L	SW-011-WT	6/6	N/A	2.9	4.5	15 N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	1200	2900 J	ug/L	SW-030-BR	3/6	5000	2900	1300	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	62	242	ug/L	SW-002-UI	5/6	15	242	63	88 N	50	AWQC	Y	ASL
	7440-02-0	Nickel	2.2	3.9 J	ug/L	SW-030-BR	4/6	40	3.9	3.5	73 N	610	AWQC	N	BSL
	7440-09-7	Potassium	1700	1700	ug/L	SW-3 Pratt Cumberland, SW-4 Pratt Lincoln	2/6	5000	1700	1800	N/A	N/A	N/A	N	NUT
	7440-23-5	Sodium	22900	49600 J	ug/L	SW-026-BR	6/6	N/A	49600	48900	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.55 J	1.4	ug/L	SW-4 Pratt Lincoln	3/6	0.4	1.4	1.4	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	14.4 J	22	ug/L	SW-4 Pratt Lincoln	4/6	20	22	24	1100 N	7400	AWQC	N	BSL

Notes:
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (chromic acid mists) used for chromium.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for endrin has been used for endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).
AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide															
	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	10/98	0.01 - 0.1	2	N/A	15 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.012	2.9	ug/L	GW-004-WT	29/98	0.01 - 0.13	2.9	N/A	220 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.015	0.035	ug/L	GNP-705	5/98	0.01 - 0.1	0.035	N/A	0.14 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.012	1	ug/L	GW-004-WT, GW-005-WT	18/98	0.01 - 0.1	1	N/A	1100 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.11	0.26	ug/L	GW-003-LF	2/98	0.01 - 0.1	0.26	N/A	0.0029 C	0.2	MCL	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.014	0.38	ug/L	GW-003-LF	4/98	0.01 - 0.1	0.38	N/A	0.029 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.15	0.15	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.15	N/A	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.16	0.16	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.16	N/A	0.29 C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.013	0.36	ug/L	GW-004-WT	10/98	0.01 - 0.1	0.36	N/A	0.029 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.019	0.34	ug/L	GW-004-WT	4/98	0.01 - 0.1	0.34	N/A	2.9 C	N/A	N/A	N	BSL
	206-44-0	Fluoranthene	0.01	2.3	ug/L	GW-004-WT	17/98	0.01 - 0.1	2.3	N/A	150 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.011	2.8	ug/L	GW-004-WT	19/98	0.01 - 0.1	2.8	N/A	150 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.14	0.14	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.14	N/A	0.029 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.012	14	ug/L	GNP-705	16/98	0.01 - 0.1	14	N/A	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	0.01	5.9	ug/L	GW-004-WT	11/98	0.01 - 0.1	5.9	N/A	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.075	1.5	ug/L	GW-004-WT	6/98	0.01 - 0.1	1.5	N/A	110 N	N/A	N/A	N	BSL
	123-91-1	1,4-Dioxane	0.81	55	ug/L	GLF-704	7/30	0.5 - 0.67	55	N/A	6.1 C	N/A	N/A	Y	ASL
	105-67-9	2,4-Dimethylphenol	0.26 J	8 J	ug/L	GNP-705	2/83	0.5 - 5	8	N/A	73 N	N/A	N/A	Y	ASL
	91-58-7	2-Chloronaphthalene	2.3	2.3	ug/L	GNP-705	1/96	0.5 - 5	2.3	N/A	290 N	N/A	N/A	N	BSL
	95-57-8	2-Chlorophenol	0.34 J	0.34 J	ug/L	GLF-706	1/95	0.5 - 5	0.34	N/A	18 N	N/A	N/A	Y	ASL
	106-47-8	4-Chloroaniline	1.4 J	1.4 J	ug/L	GNP-705	1/95	0.5 - 5	1.4	N/A	1.2 C	N/A	N/A	Y	ASL
	106-44-5	4-Methylphenol	1	4.5	ug/L	GNP-705	3/95	0.5 - 5	4.5	N/A	18 N	N/A	N/A	N	BSL
	1912-24-9	Atrazine	2.9 J	3.4 J	ug/L	GW-026-UI	1/96	0.5 - 5	3.4	N/A	0.29 C	3	MCL	Y	ASL
	100-52-7	Benzaldehyde	1.9 J	1.9 J	ug/L	GLF-704	1/96	0.5 - 5	1.9	N/A	370 N	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.29 J	50	ug/L	MW-112C	15/96	0.5 - 5	50	N/A	4.8 C	6	MCL	Y	ASL
	105-60-2	Caprolactam	3 J	160	ug/L	GW-010-LF	12/96	0.5 - 5	160	N/A	1800 N	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.48 J	0.48 J	ug/L	GNP-705	1/30	0.5 - 0.6	0.48	N/A	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.32 J	2.8 J	ug/L	GW-004-WT	3/96	0.5 - 5	2.8	N/A	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	0.3 J	5.7	ug/L	SEA-603	8/96	0.5 - 5	5.7	N/A	2900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.3 J	1.1	ug/L	GNP-705	8/96	0.5 - 5	1.1	N/A	370 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	0.35 J	9.5	ug/L	GNP-705	18/96	0.5 - 5	9.5	N/A	14 C	N/A	N/A	N	BSL
	108-95-2	Phenol	1.8	34	ug/L	GW-021-LF	3/95	0.5 - 5	34	N/A	1100 N	N/A	N/A	N	BSL
	75-34-3	1,1-Dichloroethane	0.33 J	0.83	ug/L	GW-026-UI	5/98	0.5 - 5	0.83	N/A	2.4 C	N/A	N/A	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.24 J	0.24 J	ug/L	GLF-706	1/98	0.5 - 5	0.24	N/A	0.82 N	70	MCL	Y	ASL
	95-50-1	1,2-Dichlorobenzene	0.2 J	4.4 J	ug/L	GNP-705	19/98	0.5	4.4	N/A	37 N	600	MCL	Y	ASL
	541-73-1	1,3-Dichlorobenzene	0.69	0.69	ug/L	GLF-706	1/98	0.5 - 5	0.69	N/A	0.43 C	N/A	N/A	Y	ASL
	106-46-7	1,4-Dichlorobenzene	0.25 J	8.4	ug/L	GNP-705	28/98	0.5	8.4	N/A	0.43 C	75	MCL	Y	ASL
	78-93-3	2-Butanone	1.3 J	1.3 J	ug/L	SEA-605	1/98	0.5 - 5	1.3	N/A	710 N	N/A	N/A	Y	ASL
	108-10-1	4-Methyl-2-pentanone	1.1	2.1	ug/L	SEA-605	2/98	0.5 - 5	2.1	N/A	200 N	N/A	N/A	N	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	71-43-2	Benzene	0.39	J	1100		ug/L	GW-021-LF	20/98	0.5	1100	N/A	0.41	C	5	MCL	Y	ASL
	75-27-4	Bromodichloromethane	0.32	J	0.32	J	ug/L	MW-EAI	1/98	0.5 - 5	0.32	N/A	1.1	C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.33	J	93		ug/L	GLF-706	23/98	0.5 - 39	93	N/A	9.1	N	100	MCL	Y	ASL
	75-00-3	Chloroethane	2.1	J	2.1	J	ug/L	SEA-608	1/98	0.5 - 10	2.1	N/A	2100	N	N/A	N/A	Y	ASL
	67-66-3	Chloroform	0.24	J	3.9		ug/L	GW-044-WT	9/98	0.5 - 5	3.9	N/A	0.19	C	N/A	N/A	Y	ASL
	74-87-3	Chloromethane	0.43	J	0.62		ug/L	GW-052-WT	5/98	0.5 - 5	0.62	N/A	1.8	C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23	J	22		ug/L	GW-077-DF	11/98	0.5 - 5	22	N/A	37	N	70	MCL	N	BSL
	110-82-7	Cyclohexane	0.25	J,J	1.1		ug/L	SEA-603	10/98	0.5 - 5	1.1	N/A	1300	N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.35	J	1.5		ug/L	SEA-603	7/98	0.5 - 5	1.5	N/A	1300	N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.27	J	11		ug/L	MW-C2	7/98	0.5 - 5	11	N/A	39	N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.22	J	17		ug/L	GNP-705	5/98	0.5	17	N/A	1.5	C	700	MCL	Y	ASL
	98-82-8	Isopropylbenzene	0.24	J	160		ug/L	GNP-705	12/98	0.5	160	N/A	68	N	N/A	N/A	Y	ASL
	1634-04-4	Methyl tert-butyl ether	0.23	J	21		ug/L	GNP-705	14/98	0.5 - 1.4	21	N/A	12	C	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.29	J	2.5		ug/L	GW-077-DF	4/98	0.5 - 5	2.5	N/A	0.11	C	5	MCL	Y	ASL
	108-88-3	Toluene	0.22	J	4.9	J	ug/L	GNP-705	8/98	0.5	4.9	N/A	230	N	1000	MCL	Y	ASL
	79-01-6	Trichloroethene	0.55		4.1		ug/L	GW-058-LF	4/98	0.5 - 5	4.1	N/A	1.7	C	5	MCL	Y	ASL
	75-01-4	Vinyl Chloride	0.59		1.2		ug/L	MW-C2	3/98	0.5 - 5	1.2	N/A	0.016	C	2	MCL	Y	ASL
	1330-20-7	Xylene (Total)	0.2	J	51		ug/L	GNP-705	9/98	0.5 - 1.5	51	N/A	20	N	10000	MCL	Y	ASL
	53469-21-9	Aroclor-1242	0.33	J	0.33	J	ug/L	SEA-603	1/98	0.05 - 0.27	0.33	N/A	0.034	C	0.5	MCL	Y	ASL
	12672-29-6	Aroclor-1248	0.18	J	0.18	J	ug/L	GW-027-LF	1/98	0.05 - 0.27	0.18	N/A	0.034	C	0.5	MCL	Y	ASL
	11097-69-1	Aroclor-1254	0.58		0.58		ug/L	GNP-705	1/98	0.05 - 0.27	0.58	N/A	0.034	C	0.5	MCL	Y	ASL
	72-54-8	4,4'-DDD	0.0038	J	0.0067	J	ug/L	GW-007-LF	4/95	0.005 - 0.01	0.0067	N/A	0.28	C	N/A	N/A	Y	ASL
	72-55-9	4,4'-DDE	0.0051	J	0.0056	J	ug/L	SEA-603	2/98	0.005 - 0.01	0.0056	N/A	0.2	C	N/A	N/A	Y	ASL
	50-29-3	4,4'-DDT	0.0038	J	0.0038	J	ug/L	GW-068-LF	1/98	0.005 - 0.01	0.0038	N/A	0.2	C	N/A	N/A	Y	ASL
	309-00-2	Aldrin	0.0038	J	0.006	J	ug/L	SEA-603	2/98	0.0025 - 0.01	0.006	N/A	0.004	C	N/A	N/A	Y	ASL
	319-84-6	alpha-BHC	0.0035	J	0.0035	J	ug/L	GW-021-LF	1/98	0.0025 - 0.01	0.0035	N/A	0.011	C	N/A	N/A	Y	ASL
	319-85-7	beta-BHC	0.0026		0.0026		ug/L	GW-020-NP	1/95	0.0025 - 0.01	0.0026	N/A	0.037	C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0072		0.0083	J	ug/L	GW-009-DF	2/98	0.005 - 0.01	0.0083	N/A	0.0042	C	N/A	N/A	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.0082	J	0.0082	J	ug/L	GW-058-LF	1/98	0.005 - 0.01	0.0082	N/A	22	N	N/A	N/A	Y	ASL
	58-89-9	Gamma-BHC (Lindane)	0.008	J	0.016	J	ug/L	SEA-603	2/98	0.0025 - 0.01	0.016	N/A	0.061	C	0.2	MCL	Y	ASL
	76-44-8	Heptachlor	0.0046	J	0.0046	J	ug/L	GW-027-LF	1/98	0.0025 - 0.01	0.0046	N/A	0.015	C	0.4	MCL	Y	ASL
	7429-90-5	Aluminum	8.4	J	13200		ug/L	GW-079-QW	53/98	6 - 200	13200	N/A	3700	N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.59		1.4		ug/L	GNP-705	5/98	0.5 - 2.1	1.4	N/A	1.5	N	6	MCL	N	BSL
	7440-38-2	Arsenic	0.042	J	120		ug/L	GLF-704	84/98	0.061 - 0.926	120	N/A	0.045	C	10	MCL	Y	ASL
	7440-39-3	Barium	21		700		ug/L	GNP-705	49/98	200	700	N/A	730	N	2000	MCL	N	BSL
	7440-41-7	Beryllium	0.18		0.24		ug/L	MW-112AA	2/98	0.1 - 5	0.24	N/A	7.3	N	4	MCL	N	BSL
	7440-43-9	Cadmium	0.1		27		ug/L	GUI-702	29/98	0.1 - 5	27	N/A	1.8	N	5	MCL	Y	ASL
	7440-70-2	Calcium	10000		136000		ug/L	GW-076-WT	98/98	N/A	136000	N/A	N/A		N/A	N/A	N	NUT
	7440-47-3	Chromium	0.46	J	13.4		ug/L	GW-079-QW	32/98	0.4 - 10	13.4	N/A	11	N	100	MCL	Y	ASL
	7440-48-4	Cobalt	0.12		33		ug/L	GUI-703	31/98	0.1 - 50	33	N/A	1.1	N	N/A	N/A	Y	ASL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-50-8	Copper	1	44	ug/L	MW-112AA	14/98	0.7 - 25	44	N/A	150 N	1300	MCL	N	BSL
	57-12-5	Cyanide	2.2 J	15.5	ug/L	GW-009-DF	11/97	2 - 10	15.5	N/A	73 N	200	MCL	N	BSL
	7439-89-6	Iron	116	77000	ug/L	GNP-705	73/98	4 - 6130	77000	N/A	2600 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	0.16 J	79.3	ug/L	GW-079-QW	41/98	0.1 - 15	79.3	N/A	15 N	15	MCL	Y	ASL
	7439-95-4	Magnesium	1700 J	24200	ug/L	GW-054-NP	74/98	5000	24200	N/A	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	7.1	5840	ug/L	GW-027-LF	82/98	2 - 15	5840	N/A	88 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	2.1	78	ug/L	GUI-703	15/98	0.51 - 40	78	N/A	73 N	N/A	N/A	Y	ASL
	7440-09-7	Potassium	1700	33500	ug/L	GW-002-LF	54/98	5000	33500	N/A	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.54	18	ug/L	GLF-704	18/98	0.5 - 5	18	N/A	18 N	50	MCL	N	BSL
	7440-22-4	Silver	0.12	13.7 J	ug/L	GW-021-LF	10/98	0.1 - 10	13.7	N/A	18 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	6060	240000 J	ug/L	MW-112A	98/98	N/A	240000	N/A	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	0.13	8.9 J	ug/L	GW-064-LF	23/98	0.1 - 10	8.9	N/A	0.24 N	2	MCL	Y	ASL
	7440-62-2	Vanadium	0.54 J	20.1	ug/L	GW-079-QW	35/98	0.4 - 50	20.1	N/A	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	18	4100	ug/L	GUI-703	16/98	2 - 20	4100	N/A	1100 N	N/A	N/A	Y	ASL

Notes:
Multiple results from each monitoring well were treated as discrete samples in the selection of COPCs.
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] At this time, background (upgradient) groundwater samples have not been identified. To be conservative, all available groundwater data were used for COPC screening. However, if background (upgradient) wells are identified in the future, these background concentrations may be considered in the risk characterization portion of the risk assessment.
U = Non-detect. Value is associated detection limit.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for 1,4-Dichlorobenzene has been used for 1,3-Dichlorobenzene.
PRG for cadmium associated with water intake.
PRG for chromium VI (chromic acid mists) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).
MCLs - USEPA National Primary Drinking Water Standards - July 1, 2002
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.8
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Quinnville Wellfield															
	91-20-3	Naphthalene	0.11	0.11	ug/L	GZ-4-1	1/6	0.011 - 0.1	0.11	N/A	15 N	N/A	N/A	N	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	0.2	0.2	ug/L	MW-A2	1/6	0.56 - 5	0.2	N/A	N/A	6	MCL	N	BSL

Notes:
This table includes groundwater data (detected constituents only) collected from Quinnville Wellfield. Naphthalene was the only detected chemical identified as sufficiently toxic and volatile according to Table 1 of USEPA (2002) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* were compared to the generic groundwater screening criteria in this guidance (see note #4 below).

Multiple results from each monitoring well were treated as discrete samples in the selection of COPCs.
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] To be conservative, all available groundwater data were used for COPC screening. However, background (upgradient) wells will not be used in the evaluation of potential site-related risks/hazards. Rather, background/upgradient groundwater concentrations will be used, as appropriate, to put site groundwater concentrations into perspective.
[4] Screening toxicity values are the USEPA (2002) target groundwater concentrations for a risk level of 1 x 10^{-6} from USEPA (2002) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Table 2c* .
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
MCLs - USEPA National Primary Drinking Water Standards - July 1, 2002
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide															
	59-50-7	4-Chloro-3-methylphenol	0.23 J	0.23 J	mg/kg	P1-FI-25-FILL	1/64	0.29 - 0.31	0.23	ND	0.676 N	N/A	N/A	Y	ASL
	100-02-7	4-Nitrophenol	1 J	1.0 J	mg/kg	P1-FI-25-FILL	1/64	0.29 - 3	1.0	ND	0.197 C	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.26 J	0.49 J	mg/kg	P2-FI-58-FILL	5/64	0.29 - 3	0.49	0.2	13.5 N	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.15 J	0.47 J	mg/kg	BR2-FI-84-FILL	6/64	0.29 - 0.66	0.47	0.23	0.225 C	N/A	N/A	Y	ASL
	118-74-1	Hexachlorobenzene	0.0079	0.0079	mg/kg	BR2-FI-74-FILL	1/64	0.0072 - 0.0078	0.0079	0.0074	0.00197 C	N/A	N/A	Y	ASL
	78-59-1	Isophorone	0.18 J	0.71 J	mg/kg	P1-FI-32-FILL	18/64	0.29 - 0.31	0.71	0.22	3.32 C	N/A	N/A	Y	ASL
	91-57-6	2-Methylnaphthalene	0.0077	0.038	mg/kg	BR2-FI-84-FILL	11/64	0.0072 - 0.0078	0.038	0.005	0.541 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.0074	0.048	mg/kg	BR2-FI-85-FILL	9/64	0.0072 - 0.0078	0.048	0.0098	8.11 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.0093	0.015	mg/kg	BR2-FI-84-FILL	2/64	0.0072 - 0.0077	0.015	0.0073	2.7 N	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0082	0.014	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.014	0.0078	40.6 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.0086	0.028	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.028	0.0093	0.000432 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.008	0.014	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.014	0.011	0.00432 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0089	0.016	mg/kg	P1-FI-25-FILL	4/64	0.0072 - 0.016	0.016	0.011	2.7 N	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.0075	0.021	mg/kg	BR2-FI-84-FILL	6/64	0.0072 - 0.0078	0.021	0.011	0.0432 C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.0082	0.029	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.029	0.010	0.00432 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.0075	0.032	mg/kg	BR2-FI-84-FILL	6/64	0.0072 - 0.0078	0.032	0.010	0.432 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0076	0.018	mg/kg	P1-FI-25-FILL	7/64	0.0072 - 0.0078	0.018	0.011	0.000432 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.0092	0.012	mg/kg	BR3-FI-1-FILL	5/64	0.0072 - 0.0078	0.012	0.015	5.41 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0076	0.015	mg/kg	BR2-FI-84-FILL	7/64	0.0072 - 0.0078	0.015	0.0076	5.41 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0097	0.016	mg/kg	BR3-FI-1-FILL, P1-FI-25-FILL	5/64	0.0072 - 0.0078	0.016	0.011	0.00432 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0074	0.039	mg/kg	BR2-FI-84-FILL	11/64	0.0072 - 0.0078	0.039	0.0095	2.7 N	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0077	0.038	mg/kg	BR2-FI-84-FILL	24/64	0.0072 - 0.0078	0.038	0.013	2.7 N	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.0077 J	0.054	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.054	0.0079	4.06 N	N/A	N/A	N	BSL
	1336-36-3	Total PCB Homologs	0.09	2	mg/kg	BR2-FI-82-FILL, P1-FI-39-FILL	64/64	N/A	2	1.3	2.43E-08 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0012	0.027	mg/kg	P1-FI-39-FILL	63/64	0.00032 - 0.00032	0.027	0.013	0.0131 C	N/A	N/A	Y	ASL
	72-55-9	4,4'-DDE	0.0029	0.085 J	mg/kg	BR2-FI-82-FILL	64/64	N/A	0.085	0.056	0.00928 C	N/A	N/A	Y	ASL
	50-29-3	4,4'-DDT	0.00081 J	0.0098 J	mg/kg	BR3-FI-16-FILL	19/64	0.00031 - 0.00032	0.0098	0.015	0.00928 C	N/A	N/A	Y	ASL
	309-00-2	Aldrin	0.00093 J	0.00093 J	mg/kg	P2-FI-63-FILL	1/64	0.00031 - 0.00032	0.00093	ND	0.000186 C	N/A	N/A	Y	ASL
	5103-71-9	alpha-Chlordane	0.00047 J	0.018	mg/kg	P2-FI-61-FILL	63/64	0.00032 - 0.00032	0.018	0.0094	0.00901 C	N/A	N/A	Y	ASL
	60-57-1	Dieldrin	0.002 J	0.043 J	mg/kg	P2-FI-61-FILL	64/64	N/A	0.043	0.016	0.000197 C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.00034 J	0.0044 J	mg/kg	BR3-FI-1-FILL	8/64	0.00031 - 0.00032	0.0044	0.0048	0.811 N	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.00033 J	0.0004 J	mg/kg	BR3-FI-7-FILL	4/64	0.00031 - 0.00032	0.0004	0.00051	0.811 N	N/A	N/A	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.00044 J	0.018 J	mg/kg	BR2-FI-85-FILL	64/64	N/A	0.018	0.0048	0.811 N	N/A	N/A	Y	ASL
	58-89-9	Gamma-BHC (Lindane)	0.00043	0.00063	mg/kg	BR3-FI-13-FILL	2/64	0.00031 - 0.00032	0.00063	ND	0.00287 C	N/A	N/A	N	BSL

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	5103-74-2	Gamma-Chlordane	0.00053	0.011	mg/kg	P1-FI-39-FILL	55/64	0.00031 - 0.00032	0.011	0.0056	0.00901 C	N/A	N/A	Y	ASL
	76-44-8	Heptachlor	0.001 J	0.0024	mg/kg	P1-FI-39-FILL	2/64	0.00031 - 0.00032	0.0024	ND	0.000701 C	N/A	N/A	Y	ASL
	1024-57-3	Heptachlor Epoxide	0.00033 J	0.00081 J	mg/kg	BR3-FI-9-FILL	18/64	0.00031 - 0.00032	0.00081	0.0029	0.000347 C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	1.4	5.6	mg/kg	BR3-FI-2-FILL	10/64	0.96 - 2	5.6	ND	135 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	0.017	0.1	mg/kg	BR2-FI-76-FILL, P2-FI-59-FILL	57/64	0.017 - 0.02	0.1	0.13	0.0021 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	0.1	1.9	mg/kg	P1-FI-39-FILL	17/64	0.1 - 0.2	1.9	ND	27 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.0067	0.21	mg/kg	P1-FI-39-FILL	32/64	0.0051 - 0.0099	0.21	0.041	0.135 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	100 J	14000 J	mg/kg	P1-FI-39-FILL	64/64	N/A	14000	1200	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.39	10	mg/kg	P2-FI-50-FILL, P2-FI-51-FILL	64/64	N/A	10	5.4	0.406 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	0.008	0.084	mg/kg	P1-FI-39-FILL	62/64	0.0087 - 0.0099	0.084	0.025	0.0406 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	0.16	0.82	mg/kg	P1-FI-39-FILL	64/64	N/A	0.82	0.65	5.41 N	N/A	N/A	N	BSL
	7439-89-6	Iron	3.9	210	mg/kg	P1-FI-39-FILL	64/64	N/A	210	30	94.6 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	0.01	0.2	mg/kg	P1-FI-39-FILL	4/64	0.01 - 0.02	0.2	0.029	N/A	N/A	N/A	Y	NSL
	7439-95-4	Magnesium	230	380	mg/kg	P1-FI-39-FILL	64/64	N/A	380	530	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	0.21	17	mg/kg	P1-FI-39-FILL	62/64	0.17 - 0.2	17	2.4	18.9 N	N/A	N/A	N	BSL
	7439-97-6	Mercury	0.027	0.19	mg/kg	BR3-FI-7-FILL, P1-FI-32-FILL	64/64	N/A	0.19	0.74	0.0135 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	0.095	5.4	mg/kg	P2-FI-50-FILL	64/64	N/A	5.4	2.8	2.7 N	N/A	N/A	Y	ASL
	7440-09-7	Potassium	2600	4200	mg/kg	BR2-FI-83-FILL, BR2-FI-84-FILL, BR2-FI-85-FILL, BR2-FI-87-FILL, BR3-FI-2-FILL, BR3-FI-8-FILL	64/64	N/A	4200	7300	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.29	0.73 J	mg/kg	BR2-FI-76-FILL	64/64	N/A	0.73	1.1	0.676 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	420 J	1200	mg/kg	P1-FI-39-FILL	64/64	N/A	1200	900	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.039	0.27	mg/kg	P1-FI-29-FILL	21/64	0.024 - 0.049	0.27	0.076	0.946 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	4.7	23	mg/kg	P1-FI-39-FILL	64/64	N/A	23	16	40.6 N	N/A	N/A	N	BSL

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used.
[3] Values represent maximum background concentrations. Background concentrations were not used in the COPC screening process, but may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
[4] Screening toxicity values are the USEPA (May 2008) Region 3 Risk-Based Concentrations for Fish.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The RBC values for noted analytes are as follows:
RBC for 2,3,7,8-TCDD had been used for Total PCB Homologs.
RBC for cadimum associated with dietary intake.
RBC for chlordane has been used for alpha-chlordane and gamma-chlordane.
RBC for chromium VI (particulates) used for chromium.
RBC for endosulfan has been used for endosulfan I, endosulfan II, and endosulfan sulfate.
RBC for methyl mercury has been used for mercury.
RBC for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
RBC for p-cresol has been used for 4-chloro-3-methylphenol.
RBC for p-nitrotoluene has been used for 4-nitrophenol.
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Landfill															
	91-57-6	2-Methylnaphthalene	1.6 J	2.8 J	ug/L	GW-LE3-LF,GW-LE01-UI	3/7	0.1 - 0.45	2.8	N/A	15 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	10 J	19 J	ug/L	GW-LE3-LF	3/7	0.1 - 0.9	19	N/A	220 N	670	AWQC	N	BSL
	208-96-8	Acenaphthylene	0.11	15 J	ug/L	GW-LE02-UI	6/7	0.1	15	N/A	0.14 C	N/A	N/A	Y	ASL
	120-12-7	Anthracene	0.12	2.1 J	ug/L	GW-LE01-UI	7/7	N/A	2.1	N/A	1100 N	8300	AWQC	N	BSL
	50-32-8	Benzo(a)pyrene	0.79 J	5.6 J	ug/L	GW-LE02-UI	4/7	0.35 - 0.5	5.6	N/A	0.0029 C	0.0038	AWQC	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.36	5 J	ug/L	GW-LE02-UI	7/7	N/A	5	N/A	0.029 C	0.0038	AWQC	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.24	2.9 J	ug/L	GW-LE02-UI	7/7	N/A	2.9	N/A	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.15	3.6 J	ug/L	GW-LE02-UI	7/7	N/A	3.6	N/A	0.29 C	0.0038	AWQC	Y	ASL
	56-55-3	Benzo(a)anthracene	0.31	6.8 J	ug/L	GW-LE02-UI	7/7	N/A	6.8	N/A	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.3	7.6 J	ug/L	GW-LE02-UI	7/7	N/A	7.6	N/A	2.9 C	0.0038	AWQC	Y	ASL
	53-70-3	Dibenz(a,h)anthracene	0.098 J	0.75 J	ug/L	GW-LE02-UI	6/7	0.1	0.75	N/A	0.0029 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.31	7.4	ug/L	GW-LE3-LF	7/7	N/A	7.4	N/A	150 N	130	AWQC	N	BSL
	86-73-7	Fluorene	2 J	7.3 J	ug/L	GW-LE3-LF	3/7	0.12 - 0.32	7.3	N/A	150 N	1100	AWQC	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.19	2.3 J	ug/L	GW-LE02-UI	7/7	N/A	2.3	N/A	0.029 C	0.0038	AWQC	Y	ASL
	91-20-3	Naphthalene	3.3	27 J	ug/L	GW-LE01-UI	4/7	0.11 - 1.7	27	N/A	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	2.3 J	11 J	ug/L	GW-LE3-LF	4/7	0.19 - 0.88	11	N/A	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.41	9.3 J	ug/L	GW-LE02-UI	7/7	N/A	9.3	N/A	110 N	830	AWQC	N	BSL
	92-52-4	1,1'-Biphenyl	63	63	ug/L	GW-LE6-LF	1/7	5	63	N/A	180 N	N/A	N/A	N	BSL
	95-95-4	2,4,5-Trichlorophenol	1.4 J	1.7 J	ug/L	GW-LE01-UI	2/7	20	1.7	N/A	370 N	1800	AWQC	N	BSL
	106-44-5	4-Methylphenol	1.8 J	110	ug/L	GW-LE6-LF	5/7	5	110	N/A	18 N	N/A	N/A	Y	ASL
	1912-24-9	Atrazine	8.3 J	8.3 J	ug/L	GW-LE02-UI	1/7	5	8.3	N/A	0.29 C	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	6.7	130	ug/L	GW-LE3-LF	5/7	5	130	N/A	4.8 C	1.2	AWQC	Y	ASL
	132-64-9	Dibenzofuran	2.2 J	2.7 J	ug/L	GW-LE01-UI	3/7	5	2.7	N/A	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	1 J	9.5	ug/L	GW-LE5-LF	5/7	5	9.5	N/A	2900 N	17000	AWQC	N	BSL
	84-74-2	Di-n-butylphthalate	1.1 J	2.7 J	ug/L	GW-LE3-LF	2/7	5	2.7	N/A	370 N	2000	AWQC	N	BSL
	86-30-6	N-Nitrosodiphenylamine	5.9	7.6	ug/L	GW-LE3-LF	3/7	5	7.6	N/A	14 C	3.3	AWQC	Y	ASL
	87-86-5	Pentachlorophenol	2.3 J	2.3 J	ug/L	GW-LE6-LF	1/7	5	2.3	N/A	0.56 C	0.27	AWQC	Y	ASL
	108-95-2	Phenol	1.5 J	8.6	ug/L	GW-LE6-LF	5/7	5	8.6	N/A	1100 N	21000	AWQC	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.3 J	0.3 J	ug/L	GW-LE01-UI	1/7	0.5	0.3	N/A	0.82 N	35	AWQC	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.3 J	1.1	ug/L	GW-LE3-LF	2/7	0.5	1.1	N/A	37 N	420	AWQC	N	BSL
	106-46-7	1,4-Dichlorobenzene	1.1	7.3	ug/L	GW-LE3-LF	6/7	0.5	7.3	N/A	0.43 C	63	AWQC	Y	ASL
	78-93-3	2-Butanone	18 J	19 J	ug/L	GW-LE01-UI	2/7	5	19	N/A	710 N	N/A	N/A	N	BSL
	67-64-1	Acetone	20 J	25 J	ug/L	GW-LE02-UI	2/7	5	25	N/A	2200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.34 J	15	ug/L	GW-LE3-LF	7/7	N/A	15	N/A	0.41 C	2.2	AWQC	Y	ASL
	75-15-0	Carbon disulfide	0.37 J	1.2	ug/L	GW-LE01-UI	4/7	0.5	1.2	N/A	100 N	N/A	N/A	N	BSL

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	108-90-7	Chlorobenzene	1.2	26	ug/L	GW-LE3-LF	7/7	N/A	26	N/A	9.1 N	130	AWQC	Y	ASL
	156-59-2	cis-1,2-Dichloroethene	0.79	0.8 J	ug/L	GW-FD01	2/7	0.5	0.8	N/A	37 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.38 J	9.1	ug/L	GW-LE6-LF	2/7	0.5	9.1	N/A	1.5 C	530	AWQC	Y	ASL
	98-82-8	Isopropylbenzene	1.2	6.5	ug/L	GW-LE3-LF	4/7	0.5	6.5	N/A	68 N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.36 J	13	ug/L	GW-LE6-LF	5/7	0.5	13	N/A	230 N	1300	AWQC	N	BSL
	1330-20-7	Xylene (total)	0.42 J	21	ug/L	GW-LE6-LF	5/7	0.5	21	N/A	20 N	N/A	N/A	Y	ASL
	1336-36-3	Total PCBs	0.45 J	14	ug/L	GW-LE02-UI	3/7	N/A	14	N/A	0.034 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.015 J	0.08 J	ug/L	GW-LE3-LF	3/6	0.05 - 0.5	0.08	N/A	0.28 C	0.00031	AWQC	Y	ASL
	72-55-9	4,4'-DDE	0.02 J	0.12 J	ug/L	GW-LE02-UI	2/7	0.05 - 0.5	0.12	N/A	0.2 C	0.00022	AWQC	Y	ASL
	50-29-3	4,4'-DDT	0.056 J	0.056 J	ug/L	GW-LE01-UI,GW-FD01	2/7	0.005 - 0.05	0.056	N/A	0.2 C	0.00022	AWQC	Y	ASL
	319-84-6	alpha-BHC	0.014 J	0.014 J	ug/L	GW-LE01-UI	1/7	0.0025 - 0.025	0.014	N/A	0.011 C	0.0026	AWQC	Y	ASL
	5103-71-9	alpha-Chlordane	0.0092 J	0.0092 J	ug/L	GW-LE4-LF	1/7	0.025	0.0092	N/A	0.19 C	0.0008	AWQC	Y	ASL
	60-57-1	Dieldrin	0.01 J	0.068 J	ug/L	GW-LE4-LF	2/6	0.05 - 0.5	0.068	N/A	0.0042 C	0.000052	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.011 J	0.11 J	ug/L	GW-LE02-UI	2/7	0.05	0.11	N/A	22 N	62	AWQC	N	BSL
	7421-36-3	Endrin aldehyde	0.08 J	0.08 J	ug/L	GW-LE02-UI	1/7	0.005 - 0.05	0.08	N/A	1.1 N	0.29	AWQC	N	BSL
	53494-70-5	Endrin ketone	0.088	0.088	ug/L	GW-LE02-UI	1/7	0.005 - 0.05	0.088	N/A	1.1 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.13 J	0.13 J	ug/L	GW-LE02-UI	1/7	0.025 - 0.25	0.13	N/A	0.19 C	0.0008	AWQC	Y	ASL
	72-43-5	Methoxychlor	0.33	0.33	ug/L	GW-LE02-UI	1/7	0.025 - 0.25	0.33	N/A	18 N	100	AWQC	N	BSL
	7429-90-5	Aluminum	11100	156000	ug/L	GW-LE02-UI	7/7	N/A	156000	N/A	3700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	4.9 J	38	ug/L	GW-LE5-LF	4/7	60	38	N/A	1.5 N	5.6	AWQC	Y	ASL
	7440-38-2	Arsenic	27	144	ug/L	GW-LE6-LF	7/7	N/A	144	N/A	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	569	3700	ug/L	GW-LE02-UI	7/7	N/A	3700	N/A	730 N	1000	AWQC	Y	ASL
	7440-41-7	Beryllium	0.78 J	31.6	ug/L	GW-LE02-UI	7/7	N/A	31.6	N/A	7.3 N	N/A	N/A	Y	ASL
	7440-43-9	Cadmium	13.9	311	ug/L	GW-LE02-UI	7/7	N/A	311	N/A	1.8 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	27700	259000	ug/L	GW-LE02-UI	7/7	N/A	259000	N/A	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	58	517	ug/L	GW-LE02-UI	7/7	N/A	517	N/A	11 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	20.1 J	235	ug/L	GW-LE02-UI	7/7	N/A	235	N/A	1.1 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	66	4230	ug/L	GW-LE02-UI	6/7	25	4230	N/A	150 N	1300	AWQC	Y	ASL
	57-12-5	Cyanide	12.8	103	ug/L	GW-FD01,GW-LE02-UI	7/7	N/A	103	N/A	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	22200	286000	ug/L	GW-LE02-UI	7/7	N/A	286000	N/A	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	723	4540	ug/L	GW-FD01	7/7	N/A	4540	N/A	15 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	5730	15500	ug/L	GW-LE02-UI	7/7	N/A	15500	N/A	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	952	8540	ug/L	GW-LE4-LF	7/7	N/A	8540	N/A	88 N	50	AWQC	Y	ASL
	7439-97-6	Mercury	1.8	53.7 J	ug/L	GW-LE01-UI	7/7	N/A	53.7	N/A	0.37 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	94	2020	ug/L	GW-LE02-UI	7/7	N/A	2020	N/A	73 N	610	AWQC	Y	ASL

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-09-7	Potassium	5460 J	17900 J	ug/L	GW-LE3-LF	5/7	5000	17900	N/A	N/A	N/A	N/A	N	NUT
	7440-22-4	Silver	22	22	ug/L	GW-LE02-UI	1/7	0.6 - 10	22	N/A	18 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	19100 J	72500 J	ug/L	GW-LE4-LF	7/7	N/A	72500	N/A	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	7.5 J	18.1 J	ug/L	GW-LE02-UI	2/7	4	18.1	N/A	0.24 N	0.24	AWQC	Y	ASL
	7440-62-2	Vanadium	47.4 J	310	ug/L	GW-LE02-UI	7/7	N/A	310	N/A	26 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	854	50900	ug/L	GW-LE02-UI	7/7	N/A	50900	N/A	1100 N	7400	AWQC	Y	ASL

Notes:
Data represent "leachate" data collected from excavation trenches in Landfill and Unnamed Island and are used for COPC screening purposes only.
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (chromic acid mists) used for chromium.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).
AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.11
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands																		
	50-32-8	Benzo(a)pyrene	0.042	J	0.14	J	mg/kg	SO-062-WT	4/5	0.34	0.14	7.5	0.015	C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.039	J	0.18	J	mg/kg	SO-062-WT	5/5	N/A	0.18	7.8	0.15	C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.051	J	0.094	J	mg/kg	SO-061-WT	4/5	0.34	0.094	4.4	3.9	C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.059	J	0.082	J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.082	3.4 (J)	1.5	C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.039	J	0.12	J	mg/kg	SO-062-WT	4/5	0.34	0.12	9.3	0.15	C	N/A	N/A	N	BSL
	218-01-9	Chrysene	0.039	J	0.16	J	mg/kg	SO-062-WT	5/5	N/A	0.16	8.9	15	C	N/A	N/A	N	BSL
	206-44-0	Fluoranthene	0.066	J	0.23	J	mg/kg	SO-062-WT	5/5	N/A	0.23	15	230	N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.056	J	0.082	J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.082	2.6 (J)	0.15	C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.058	J	0.1	J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.1	14	3.9	C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.069	J	0.19	J	mg/kg	SO-062-WT, SO-063-WT	5/5	N/A	0.19	19 (J)	170	N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.07	J	0.95	J	mg/kg	SO-061-WT	5/5	N/A	0.95	12	35	C	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.057	J	0.064	J	mg/kg	SO-063-WT	2/5	0.34 - 0.4	0.064	0.48 (U)	610	N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001	J	0.001	J	mg/kg	SO-059-WT, SO-062-WT, SO-063-WT	3/5	0.01 - 0.014	0.001	0.0009 (J)	500	N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	3050		7570		mg/kg	SO-061-WT	5/5	N/A	7570	6350	7700	N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	2.1		7.2		mg/kg	SO-062-WT	5/5	N/A	7.2	9.5	0.39	C	N/A	N/A	Y	ASL
	7440-39-3	Barium	34.6		34.6		mg/kg	SO-061-WT	1/5	36 - 43	34.6	49.6	1500	N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.32		0.84		mg/kg	SO-061-WT	5/5	N/A	0.84	0.5	16	N	N/A	N/A	N	BSL
	7440-70-2	Calcium	905		905		mg/kg	SO-061-WT	1/5	890 - 1100	905	1180	N/A		N/A	N/A	N	NUT
	7440-47-3	Chromium	5.6		18.9		mg/kg	SO-061-WT	5/5	N/A	18.9	89.6	23	N	N/A	N/A	N	BSL
	7440-50-8	Copper	6.9		17.4		mg/kg	SO-062-WT	5/5	N/A	17.4	75.1	310	N	N/A	N/A	N	BSL
	7439-89-6	Iron	6220		9470		mg/kg	SO-062-WT	5/5	N/A	9470	11800	5500	N	N/A	N/A	Y	ASL
	7439-92-1	Lead	7.2		23.9		mg/kg	SO-061-WT	5/5	N/A	23.9	161	40	N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	1200		2210		mg/kg	SO-061-WT	5/5	N/A	2210	2070	N/A		N/A	N/A	N	NUT
	7439-96-5	Manganese	83.7		117	EB	mg/kg	SO-059-WT	5/5	N/A	117	175	180	N	N/A	N/A	N	BSL
	7439-97-6	Mercury	0.025	J	0.081		mg/kg	SO-061-WT, SO-062-WT	5/5	N/A	0.081	0.7	0.78	N	N/A	N/A	N	BSL
	7440-02-0	Nickel	8.2		8.2		mg/kg	SO-061-WT	1/5	7.1 - 8.6	8.2	9	160	N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.37	J	0.37	J	mg/kg	SO-060-WT	1/5	0.34 - 0.43	0.37	7.3	39	N	N/A	N/A	N	BSL
	7440-28-0	Thallium	0.81	J	0.98	J	mg/kg	SO-061-WT	3/5	0.55 - 0.64	0.98	0.83 (U)	0.51	N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.8		16.3		mg/kg	SO-061-WT	5/5	N/A	16.3	21.3	55	N	N/A	N/A	N	BSL
	7440-66-6	Zinc	24		40.9		mg/kg	SO-061-WT	5/5	N/A	40.9	74.5	2300	N	N/A	N/A	N	BSL

TABLE 2.11
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
E = The reported value is estimated due to the presence of interference.
B = The reported value was obtained from a reading less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.
U = Non-detect. Value is associated detection limit.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for chromium VI (particulates) used for chromium.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for benzo(g,h,i)perylene and phenanthrene.
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands															
	91-57-6	2-Methylnaphthalene	0.0036 J	0.43	mg/kg	T05WB-002	10/23	0.0037 - 0.62	0.43	0.43	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.003	0.071	mg/kg	T05WB-002	8/23	0.0021 - 0.62	0.071	0.18	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.0085	0.36	mg/kg	T05WB-002	21/23	0.0037 - 0.52	0.36	0.47	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0048	0.39	mg/kg	SE-062-WT	21/23	0.0037 - 0.52	0.39	0.96	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.012	3.1	mg/kg	SE-053-WT	23/23	N/A	3.1	2.7	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.02	2.8 J	mg/kg	SE-060-WT	21/21	N/A	2.8	2.6	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0091	2.9	mg/kg	SE-053-WT	22/23	0.52	2.9	1.9	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.004	1.9	mg/kg	SE-053-WT	23/23	N/A	1.9	2.4	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.0094	1.8	mg/kg	SE-053-WT	23/23	N/A	1.8	2.8	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.014	3.6	mg/kg	SE-053-WT	23/23	N/A	3.6	2.8	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0058	0.63	mg/kg	SE-053-WT	17/23	0.0037 - 0.62	0.63	0.7	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.019	5.6	mg/kg	SE-053-WT	23/23	N/A	5.6	4.9	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0024	0.14	mg/kg	T05WB-002	16/23	0.0037 - 0.54	0.14	0.32	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0067	2.5	mg/kg	SE-053-WT	22/23	0.52	2.5	1.8	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0041 J	0.49	mg/kg	T05WB-002	9/23	0.0037 - 0.62	0.49	0.35	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0091	2.3	mg/kg	SE-053-WT	23/23	N/A	2.3	2.4	3.9 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.017	4.2	mg/kg	SE-053-WT	23/23	N/A	4.2	4.2	170 N	N/A	N/A	N	BSL
	95-48-7	2-Methylphenol	0.0075 EB	0.0075 EB	mg/kg	T05WB-001	1/23	0.0021 - 0.62	0.0075	0.016	310 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	0.26 J	mg/kg	T05WB-002	6/23	0.11 - 0.6	0.26	0.48	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.062 J	2.1	mg/kg	SE-010-WT	5/23	0.1 - 0.75	2.1	5.9	35 C	N/A	N/A	N	BSL
	85-68-7	Butylbenzylphthalate	0.07 J	0.07 J	mg/kg	SE-010-WT	1/23	0.1 - 0.62	0.07	0.18	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.034 J	0.46 J	mg/kg	SE-053-WT	6/23	0.1 - 0.6	0.46	0.33	N/A	N/A	N/A	Y	NSL
	131-11-3	Dimethylphthalate	0.062 J	0.062 J	mg/kg	SE-013-WT	1/23	0.1 - 0.62	0.062	ND	4900 N	N/A	N/A	N	BSL
	108-95-2	Phenol	1.6 J	1.6 J	mg/kg	T05WB-002	1/23	0.1 - 0.62	1.6	0.180	1800 N	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.004 J	0.13	mg/kg	SE-062-WT	12/23	0.002 - 0.033	0.13	0.056	2800 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.015 J	0.36 J	mg/kg	SE-062-WT	8/23	0.0049 - 0.037	0.36	0.15	6100 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.004 J	0.004 J	mg/kg	SE-014-WT	1/23	0.0017 - 0.038	0.004	ND	78 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.001 J	0.0034 J	mg/kg	T05WB-002	2/23	0.002 - 0.038	0.0034	0.0053	5.7 C	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.009 J	0.009 J	mg/kg	SE-063-WT	1/23	0.0043 - 0.084	0.009	ND	11 C	N/A	N/A	N	BSL
	100-42-5	Styrene	0.0013 J	0.0013 J	mg/kg	T05WB-002	1/23	0.0017 - 0.038	0.0013	0.002	650 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.008 J	0.008 J	mg/kg	SE-010-WT	1/23	0.0017 - 0.038	0.008	ND	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0005 J	0.0057	mg/kg	T05WB-001	4/23	0.0041 - 0.033	0.0057	0.00051	500 N	N/A	N/A	N	BSL
	79-01-6	Trichloroethene	0.002 J	0.002 J	mg/kg	SE-014-WT	1/23	0.0017 - 0.038	0.002	0.0024	2.8 C	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.0013 J	0.0013 J	mg/kg	T05WB-001	1/23	0.0059 - 0.038	0.0013	0.001	60 N	N/A	N/A	N	BSL
	11096-82-5	Aroclor-1260	0.012 J	0.36 J	mg/kg	T05WB-002	14/23	0.0074 - 0.012	0.36	0.65	0.22 C	N/A	N/A	Y	ASL

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)		Maximum Concentration (Qualifier) (1)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	72-54-8	4,4'-DDD	0.00059	J	0.016	J	mg/kg	SE-062-WT	14/22	0.00074 - 0.0012	0.016	0.018	2	C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.00069	J	0.014	J	mg/kg	T05WB-002	17/22	0.00082 - 0.0012	0.014	0.016	1.4	C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.00072	J	0.005	J	mg/kg	SE-010-WT	8/15	0.00061 - 0.0012	0.005	0.0027	1.7	C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.00064	J	0.012	J	mg/kg	SE-010-WT	13/22	0.00038 - 0.00082	0.012	0.0063	1.6	C	N/A	N/A	N	BSL
	319-85-7	Beta-BHC	0.0029		0.0029		mg/kg	SE-016-WT	1/23	0.00034 - 0.00082	0.0029	ND	0.27	C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0011		0.0011		mg/kg	T05WB-002	1/23	0.00066 - 0.0013	0.0011	0.017	0.03	C	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.0012	J	0.002	J	mg/kg	SE-011-WT	2/21	0.00061 - 0.0054	0.002	0.013	37	N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0012	J	0.0013	J	mg/kg	SE-057-WT	2/22	0.00061 - 0.0041	0.0013	0.0027	1.8	N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.0088	J	0.0088	J	mg/kg	T05WB-002	1/19	0.00066 - 0.0054	0.0088	0.02	1.8	N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00059	J	0.011		mg/kg	SE-010-WT	6/20	0.00034 - 0.00082	0.011	0.0065	1.6	C	N/A	N/A	N	BSL
	7429-90-5	Aluminum	2390		36500		mg/kg	SE-055-WT	23/23	N/A	36500	12	7700	N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.34	J	4.2		mg/kg	SE-055-WT	5/23	0.12 - 58	4.2	0.00076	3.1	N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	1.2	J	19.2		mg/kg	SE-016-WT	23/23	N/A	19.2	0.012	0.39	C	N/A	N/A	Y	ASL
	7440-39-3	Barium	26		289	J	mg/kg	SE-055-WT	13/23	0.15 - 76	289	0.14	1500	N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.18	J	1.4		mg/kg	SE-062-WT, T05WB-002	12/23	0.063 - 1.7	1.4	0.00088	16	N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.09	J	2.5		mg/kg	SE-063-WT	16/23	0.047 - 0.071	2.5	0.012	7	N	N/A	N/A	N	BSL
	7440-70-2	Calcium	771	J	8310	J	mg/kg	SE-055-WT	20/23	1100 - 1500	8310	3.3	N/A		N/A	N/A	N	NUT
	7440-47-3	Chromium	3.7	J	125	J	mg/kg	SE-055-WT	23/23	N/A	125	0.12	23	N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.1	J	32.5		mg/kg	SE-055-WT	15/23	9.7 - 15	32.5	0.012	2.3	N	N/A	N/A	Y	ASL
	7440-50-8	Copper	8.9		86.2		mg/kg	SE-055-WT	22/23	5.8	86.2	0.18	310	N	N/A	N/A	N	BSL
	57-12-5	Cyanide	0.4	J	0.4	J	mg/kg	SE-013-WT	1/20	0.17 - 0.76	0.4	ND	160	N	N/A	N/A	N	BSL
	7439-89-6	Iron	6380		57000		mg/kg	T05WD-003	23/23	N/A	57000	25	5500	N	N/A	N/A	Y	ASL
	7439-92-1	Lead	6.7	J	362	J	mg/kg	SE-010-WT	23/23	N/A	362	0.45	40	N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1510		27400		mg/kg	SE-055-WT	22/23	1165	27400	4.1	N/A		N/A	N/A	N	NUT
	7439-96-5	Manganese	107		1900		mg/kg	SE-055-WT	23/23	N/A	1900	0.3	180	N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.016	J	0.39		mg/kg	T05WB-002	11/23	0.051 - 0.077	0.39	0.00054	0.78	N	N/A	N/A	N	BSL
	7440-02-0	Nickel	3	J	82.7	J	mg/kg	SE-055-WT	20/23	10 - 12	82.7	0.052	160	N	N/A	N/A	N	BSL
	7440-09-7	Potassium	390		13500		mg/kg	SE-055-WT	12/23	970 - 1904	13500	1.5	N/A		N/A	N/A	N	NUT
	7782-49-2	Selenium	0.83	J	3.3		mg/kg	SE-016-WT	17/23	0.15 - 1.5	3.3	0.0025	39	N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.082		19.1	J	mg/kg	SE-055-WT	23/23	N/A	19.1	0.0052	39	N	N/A	N/A	N	BSL
	7440-23-5	Sodium	100		290		mg/kg	T05WB-002	3/23	890 - 1904	290	2.5	N/A		N/A	N/A	N	NUT
	7440-28-0	Thallium	0.071		0.52		mg/kg	T05WB-002	4/23	0.36 - 0.76	0.52	0.0004	0.51	N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.2	J	86.6		mg/kg	SE-055-WT	22/23	13	86.6	0.031	55	N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	32.8	J	262	J	mg/kg	SE-010-WT	23/23	N/A	262	0.68	2300	N	N/A	N/A	N	BSL

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for diethylphthalate has been used for dimethylphthalate.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.13
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands															
	120-12-7	Anthracene	0.19 J	0.19 J	ug/L	SE-052-WT SW-052-WT	1/17	0.1	0.19	0.014	1100 N	8300	AWQC	N	BSL
	205-99-2	Benzo(b)fluoranthene	0.1	0.1	ug/L	SE-053B-WT SW-053-WT	1/17	0.1	0.1	0.086	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.11	0.11	ug/L	SE-014-WT SW-014-WT	1/17	0.1	0.11	0.074	2.9 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.1	0.2	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.2	0.083	150 N	130	AWQC	N	BSL
	85-01-8	Phenanthrene	0.11	0.12	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.12	0.045	0.14 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.14	0.21	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.21	0.087	110 N	830	AWQC	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	1.9 J	1.9 J	ug/L	SE-060-WT SW-060-WT	1/16	5	1.9	ND	4.8 C	1.2	AWQC	Y	ASL
	74-87-3	Chloromethane	0.37 J	0.67	ug/L	SE-016-WT SW-016-WT	7/17	0.38 - 0.5	0.67	0.37	1.8 C	N/A	N/A	N	BSL
	319-85-7	beta-BHC	0.0036 J	0.01 J	ug/L	SE-017-WT SW-017-WT	3/17	0.0025	0.01	ND	0.037 C	0.0091	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.013	0.013	ug/L	SE-011-WT SW-011-WT	1/16	0.005	0.013	ND	22 N	62	AWQC	N	BSL
		Metals (Total)													
	7429-90-5	Aluminum	30.9	2100	ug/L	SE-017-WT SW-017-WT	12/17	200	2100	360	3700 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	0.29	3.42	ug/L	SE-052-WT SW-052-WT	17/17	N/A	3.42	2.29	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	61.1	61.1	ug/L	SE-057-WT SW-057-WT	1/17	27.7 - 200	61.1	25	730 N	1000	AWQC	N	BSL
	7440-43-9	Cadmium	0.24 J	1.2 J	ug/L	SE-017-WT SW-017-WT	2/17	0.2 - 0.21	1.2	0.82	1.8 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	6940	60600	ug/L	SE-052-WT SW-052-WT	17/17	N/A	60600	18100	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.44 J	5.7 J	ug/L	SE-017-WT SW-017-WT	9/17	0.4 - 2.1	5.7	2.8	11 N	N/A	N/A	N	BSL
	7440-48-4	Cobalt	0.66 J	6.7 J	ug/L	SE-017-WT SW-017-WT	6/17	0.4 - 50	6.7	0.54	1.1 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	6 J	179 J	ug/L	SE-017-WT SW-017-WT	3/17	3 - 8.4	179	ND	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	422 J	3740 J	ug/L	SE-017-WT SW-017-WT	12/17	381 - 1320	3740	840	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	1.6 J	5.1	ug/L	SE-014-WT SW-014-WT	11/17	0.8 - 2	5.1	11	15 N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	2930	8870	ug/L	SE-052-WT SW-052-WT	8/17	5000	8870	3280	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	15.4 J	704 J	ug/L	SE-017-WT SW-017-WT	17/17	N/A	704	126	88 N	50	AWQC	Y	ASL

TABLE 2.13
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-09-7	Potassium	2300	9800	ug/L	SE-052-WT SW-052-WT	11/17	5000	9800	5640	N/A	N/A	N/A	N	NUT
	7440-22-4	Silver	2.8 J	2.8 J	ug/L	SE-052-WT SW-052-WT	1/17	0.4 - 2	2.8	ND	18 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	8110	44300	ug/L	SE-052-WT SW-052-WT	17/17	N/A	44300	59700	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.62 J	5.1 J	ug/L	SE-017-WT SW-017-WT	15/17	0.4 - 0.7	5.1	2.1	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	20.9	98	ug/L	SE-017-WT SW-017-WT	3/17	3 - 20	98	21	1100 N	7400	AWQC	N	BSL
		Metals (Dissolved)													
	7440-38-2	Arsenic	0.655	0.655	ug/L	SE-011-WT SW-011-WT	1/1	N/A	0.655	1.69	0.045 C	0.018	AWQC	Y	ASL
	7440-70-2	Calcium	11400	11400	ug/L	SE-011-WT SW-011-WT	1/1	N/A	11400	13800	N/A	N/A	N/A	N	NUT
	7439-89-6	Iron	333	333	ug/L	SE-011-WT SW-011-WT	1/1	N/A	333	291	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	2.9 J	2.9 J	ug/L	SE-011-WT SW-011-WT	1/1	N/A	2.9	4.5	15 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	22900	22900	ug/L	SE-011-WT SW-011-WT	1/1	N/A	22900	48900	N/A	N/A	N/A	N	NUT

Notes:
N/A = Not Applicable or Not Available
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chromium VI (chromic acid mists) used for chromium.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for phenanthrene.
The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).
AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006
[5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.14
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel															
	91-57-6	2-Methylnaphthalene	0.071 J	0.9 J	mg/kg	SO-034-NP	21/36	0.14 - 0.39	1.3	ug/m3	0.072 C	N/A	N/A	Y	ASL
	83-32-9	Acenaphthene	0.26 J	2.4	mg/kg	SO-105-NP	19/36	0.14 - 4.2	0.37	ug/m3	0.072 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12 J	24	mg/kg	SO-105-NP	33/36	0.14 - 0.15	NV						
	218-01-9	Chrysene	0.092 J	18	mg/kg	SO-105-NP	32/36	0.14 - 0.17	NV						
	86-73-7	Fluorene	0.048 J	2.1	mg/kg	SO-105-NP	22/36	0.14 - 0.17	0.062	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.049 J	0.9 J	mg/kg	SO-108-NP	22/36	0.14 - 0.17	2.4	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11 J	32	mg/kg	SO-105-NP	33/36	0.14 - 0.15	0.012	ug/m3	0.072 C	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11 J	0.12 J	mg/kg	SO-035-NP,SO-105-NP	6/36	0.14 - 4.2	0.068	ug/m3	N/A	N/A	N/A	Y	NSL
	98-86-2	Acetophenone	0.08 JEB	0.08 JEB	mg/kg	SO-105-NP	1/36	0.14 - 4.2	0.11	ug/m3	0.0031 N	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.15 J	0.54 J	mg/kg	SO-105-NP	11/36	0.14 - 4.2	2.3	ug/m3	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056 J	0.92	mg/kg	SO-105-NP	20/36	0.14 - 4.2	NV						
	75-35-4	1,1-Dichloroethene	0.003 J	0.003 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	13.9	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008 J	0.008 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	0.42	ug/m3	0.22 C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	0.003 J	0.096 J	mg/kg	SO-034-NP	7/36	0.0011 - 0.11	5.6	ug/m3	520 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053	0.15	mg/kg	SO-034-NP	6/36	0.0028 - 1.6	8.4	ug/m3	3200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001 J	0.31 J	mg/kg	SO-034-NP	3/36	0.0011 - 0.11	411	ug/m3	0.31 C	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.001 J	0.027	mg/kg	SO-035-NP	4/36	0.0011 - 0.11	156	ug/m3	73 N	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.018 J	0.018 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	4.5	ug/m3	5.2 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001 J	0.001 J	mg/kg	SO-036-NP	1/36	0.0011 - 0.11	1.3	ug/m3	6.3 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002 J	0.08 J	mg/kg	SO-034-NP	2/36	0.0028 - 0.28	516	ug/m3	630 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003 J	0.003 J	mg/kg	SO-033-NP	1/36	0.0011 - 0.11	16	ug/m3	21 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02 J	0.02 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	6.5	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.029	0.029	mg/kg	SO-034-NP	1/36	0.0028 - 0.28	9.8	ug/m3	42 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008 J	1.1 J	mg/kg	SO-052-NP	5/36	0.0011 - 1.2	147	ug/m3	21 N	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.0023	0.015	mg/kg	SO-009-NP	2/36	0.0011 - 0.11	22.6	ug/m3	0.41 C	N/A	N/A	Y	ASL
	108-88-3	Toluene	0.001 J	13	mg/kg	SO-102-NP	8/36	0.001 - 0.11	7680	ug/m3	520 N	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.18 J	0.44	mg/kg	SO-102-NP	3/36	0.0034 - 0.34	130	ug/m3	10 N	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06	1 J	mg/kg	SO-034-NP	14/36	0.014 - 0.039	NV						
	11096-82-5	Aroclor-1260	0.036	0.55	mg/kg	SO-055-NP	21/30	0.014 - 0.015	NV						
	72-55-9	4,4'-DDE	0.0008 J	0.023 J	mg/kg	SO-033-NP	24/28	0.00071 - 0.0035	NV						
	5103-71-9	alpha-Chlordane	0.0008 J	0.018 J	mg/kg	SO-052-NP	20/27	0.00072 - 0.0022	NV						
	60-57-1	Dieldrin	0.0051	0.31	mg/kg	SO-052-NP	24/30	0.00072 - 0.0042	NV						
	959-98-8	Endosulfan I	0.0015	0.002 J	mg/kg	SO-105-NP	2/30	0.00071 - 0.0022	NV						

TABLE 2.14
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	1031-07-8	Endosulfan Sulfate	0.029 J	0.029 J	mg/kg	SO-035-NP	2/18	0.00071 - 0.0042	NV						
	5103-74-2	Gamma-Chlordane	0.00085 J	0.016	mg/kg	SO-052-NP	13/21	0.00072 - 0.002	NV						
	72-43-5	Methoxychlor	0.026 J	0.035 J	mg/kg	SO-105-NP	2/27	0.0024 - 0.022	NV						

Notes:
Only includes subsurface soils data collected from Nunes Parcel.
N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (basement) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for 2-chloroacetophenone has been used for acetophenone.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.
PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.
PRG for vinyl acetate has been used for methyl acetate.

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.15
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel															
	91-57-6	2-Methylnaphthalene	0.071 J	0.9 J	mg/kg	SO-034-NP	21/36	0.14 - 0.39	0.9	ug/m3	0.072 C	N/A	N/A	Y	ASL
	83-32-9	Acenaphthene	0.26 J	2.4	mg/kg	SO-105-NP	19/36	0.14 - 4.2	0.23	ug/m3	0.072 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12 J	24	mg/kg	SO-105-NP	33/36	0.14 - 0.15	NV						
	218-01-9	Chrysene	0.092 J	18	mg/kg	SO-105-NP	32/36	0.14 - 0.17	NV						
	86-73-7	Fluorene	0.048 J	2.1	mg/kg	SO-105-NP	22/36	0.14 - 0.17	0.035	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.049 J	0.9 J	mg/kg	SO-108-NP	22/36	0.14 - 0.17	1.8	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11 J	32	mg/kg	SO-105-NP	33/36	0.14 - 0.15	0.0057	ug/m3	0.072 C	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11 J	0.12 J	mg/kg	SO-035-NP,SO-105-NP	6/36	0.14 - 4.2	0.04	ug/m3	N/A	N/A	N/A	Y	NSL
	98-86-2	Acetophenone	0.08 JEB	0.08 JEB	mg/kg	SO-105-NP	1/36	0.14 - 4.2	0.084	ug/m3	0.0031 N	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.15 J	0.54 J	mg/kg	SO-105-NP	11/36	0.14 - 4.2	1.9	ug/m3	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056 J	0.92	mg/kg	SO-105-NP	20/36	0.14 - 4.2	NV						
	75-35-4	1,1-Dichloroethene	0.003 J	0.003 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	13.5	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008 J	0.008 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	0.35	ug/m3	0.22 C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	0.003 J	0.096 J	mg/kg	SO-034-NP	7/36	0.0011 - 0.11	5	ug/m3	520 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053	0.15	mg/kg	SO-034-NP	6/36	0.0028 - 1.6	10	ug/m3	3200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001 J	0.31 J	mg/kg	SO-034-NP	3/36	0.0011 - 0.11	391	ug/m3	0.31 C	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.001 J	0.027	mg/kg	SO-035-NP	4/36	0.0011 - 0.11	165	ug/m3	73 N	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.018 J	0.018 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	3.8	ug/m3	5.2 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001 J	0.001 J	mg/kg	SO-036-NP	1/36	0.0011 - 0.11	1.1	ug/m3	6.3 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002 J	0.08 J	mg/kg	SO-034-NP	2/36	0.0028 - 0.28	438	ug/m3	630 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003 J	0.003 J	mg/kg	SO-033-NP	1/36	0.0011 - 0.11	12.8	ug/m3	21 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02 J	0.02 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	5.6	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.029	0.029	mg/kg	SO-034-NP	1/36	0.0028 - 0.28	7.7	ug/m3	42 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008 J	1.1 J	mg/kg	SO-052-NP	5/36	0.0011 - 1.2	156	ug/m3	21 N	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.0023	0.015	mg/kg	SO-009-NP	2/36	0.0011 - 0.11	19	ug/m3	0.41 C	N/A	N/A	Y	ASL
	108-88-3	Toluene	0.001 J	13	mg/kg	SO-102-NP	8/36	0.001 - 0.11	7250	ug/m3	520 N	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.18 J	0.44	mg/kg	SO-102-NP	3/36	0.0034 - 0.34	114	ug/m3	10 N	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06	1 J	mg/kg	SO-034-NP	14/36	0.014 - 0.039	NV						
	11096-82-5	Aroclor-1260	0.036	0.55	mg/kg	SO-055-NP	21/30	0.014 - 0.015	NV						
	72-55-9	4,4'-DDE	0.0008 J	0.023 J	mg/kg	SO-033-NP	24/28	0.00071 - 0.0035	NV						
	5103-71-9	alpha-Chlordane	0.0008 J	0.018 J	mg/kg	SO-052-NP	20/27	0.00072 - 0.0022	NV						
	60-57-1	Dieldrin	0.0051	0.31	mg/kg	SO-052-NP	24/30	0.00072 - 0.0042	NV						
	959-98-8	Endosulfan I	0.0015	0.002 J	mg/kg	SO-105-NP	2/30	0.00071 - 0.0022	NV						

TABLE 2.15
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	1031-07-8	Endosulfan Sulfate	0.029 J	0.029 J	mg/kg	SO-035-NP	2/18	0.00071 - 0.0042	NV						
	5103-74-2	Gamma-Chlordane	0.00085 J	0.016	mg/kg	SO-052-NP	13/21	0.00072 - 0.002	NV						
	72-43-5	Methoxychlor	0.026 J	0.035 J	mg/kg	SO-105-NP	2/27	0.0024 - 0.022	NV						

Notes:
Only includes subsurface soils data collected from Nunes Parcel.
N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for 2-chloroacetophenone has been used for acetophenone.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.
PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.
PRG for vinyl acetate has been used for methyl acetate.

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.16
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel															
	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	2/18	0.01 - 0.1	0.009	ug/m3	0.072 C	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.033	0.63	ug/L	SEA-606 GW-069-NP	5/18	0.01 - 0.1	0.0009	ug/m3	0.072 C	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.15	0.34	ug/L	GNP-705	4/18	0.01 - 0.1	0.0002	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.12	14	ug/L	GNP-705	2/18	0.01 - 0.1	0.083	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.075	0.075	ug/L	GNP-705	1/18	0.01 - 0.1	0.0000061	ug/m3	0.072 C	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.2	4.4	ug/L	GNP-705	3/18	0.5	0.12	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.25	8.4	ug/L	GNP-705	5/18	0.5	0.3	ug/m3	0.22 C	N/A	N/A	Y	ASL
	71-43-2	Benzene	0.42	19	ug/L	GNP-705	3/18	0.5	2.4	ug/m3	0.31 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	2.2	2.7	ug/L	SEA-606 GW-069-NP	2/18	0.5 - 39	0.17	ug/m3	5.2 N	N/A	N/A	N	BSL
	67-66-3	Chloroform	2.4	2.4	ug/L	GNP-705B	1/18	0.5 - 5	0.24	ug/m3	0.11 C	N/A	N/A	Y	ASL
	74-87-3	Chloromethane	0.43	0.43	ug/L	GNP-708	1/18	0.5 - 5	0.15	ug/m3	1.4 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23	0.89	ug/L	GNP-708	2/18	0.5 - 5	0.076	ug/m3	6.3 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	17	17	ug/L	GNP-705	1/18	0.5	2.3	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.73	160	ug/L	GNP-705	2/18	0.5	28.8	ug/m3	42 N	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.3	21	ug/L	GNP-705	5/18	0.5 - 1.4	0.37	ug/m3	9.4 C	N/A	N/A	N	BSL
	108-88-3	Toluene	4.9	4.9	ug/L	GNP-705	1/18	0.5	0.67	ug/m3	520 N	N/A	N/A	N	BSL
	75-01-4	Vinyl chloride	0.59	0.85	ug/L	SEA-606	2/18	0.5 - 5	0.78	ug/m3	0.16 C	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.2	51	ug/L	GNP-705	2/18	0.5 - 1.5	6.7	ug/m3	10 N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.58	0.58	ug/L	GNP-705	1/18	0.05 - 0.25	NV						

Notes:
Only includes groundwater data collected from Nunes Parcel.
N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (basement) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.
PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.17
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel															
	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	2/18	0.01 - 0.1	0.0014	ug/m3	0.072 C	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.033	0.63	ug/L	SEA-606 GW-069-NP	5/18	0.01 - 0.1	0.00016	ug/m3	0.072 C	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.15	0.34	ug/L	GNP-705	4/18	0.01 - 0.1	0.000042	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.12	14	ug/L	GNP-705	2/18	0.01 - 0.1	0.013	ug/m3	0.072 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.075	0.075	ug/L	GNP-705	1/18	0.01 - 0.1	0.0000012	ug/m3	0.072 C	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.2	4.4	ug/L	GNP-705	3/18	0.5	0.019	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.25	8.4	ug/L	GNP-705	5/18	0.5	0.048	ug/m3	0.22 C	N/A	N/A	N	BSL
	71-43-2	Benzene	0.42	19	ug/L	GNP-705	3/18	0.5	0.41	ug/m3	0.31 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	2.2	2.7	ug/L	SEA-606 GW-069-NP	2/18	0.5 - 39	0.028	ug/m3	5.2 N	N/A	N/A	N	BSL
	67-66-3	Chloroform	2.4	2.4	ug/L	GNP-705B	1/18	0.5 - 5	0.043	ug/m3	0.11 C	N/A	N/A	N	BSL
	74-87-3	Chloromethane	0.43	0.43	ug/L	GNP-708	1/18	0.5 - 5	0.029	ug/m3	1.4 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23	0.89	ug/L	GNP-708	2/18	0.5 - 5	0.012	ug/m3	6.3 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	17	17	ug/L	GNP-705	1/18	0.5	0.37	ug/m3	0.97 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.73	160	ug/L	GNP-705	2/18	0.5	4.5	ug/m3	42 N	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.3	21	ug/L	GNP-705	5/18	0.5 - 1.4	0.068	ug/m3	9.4 C	N/A	N/A	N	BSL
	108-88-3	Toluene	4.9	4.9	ug/L	GNP-705	1/18	0.5	0.12	ug/m3	520 N	N/A	N/A	N	BSL
	75-01-4	Vinyl chloride	0.59	0.85	ug/L	SEA-606	2/18	0.5 - 5	0.14	ug/m3	0.16 C	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.2	51	ug/L	GNP-705	2/18	0.5 - 1.5	1.1	ug/m3	10 N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.58	0.58	ug/L	GNP-705	1/18	0.05 - 0.25	NV						

Notes:
Only includes groundwater data collected from Nunes Parcel.
N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.
PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.18
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Quinnville Wellfield	91-20-3	Naphthalene	0.11	0.11	ug/L	GZ-4-1	1/6	0.011 - 0.1	0.00011	ug/m3	0.072 C	N/A	N/A	N	BSL

Notes:
Only includes groundwater data collected from Quinnville Wellfield.
N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.19
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Southern Bank															
	79-20-9	Methyl acetate	0.002 J	0.007 J	mg/kg	SO-069-BR	3/8	0.009 - 0.012	1	ug/m3	21 N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001 J	0.001 J	mg/kg	SO-064-BR	1/8	0.008 - 0.018	0.56	ug/m3	520 N	N/A	N/A	N	BSL

Notes:
Only includes groundwater data collected from Nunes Parcel.
N/A = Not available/Not applicable
[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)
[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for vinyl acetate has been used for methyl acetate.
[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Quinnville Wellfield									
	Benzo(a)anthracene	mg/kg	9.3E-01	1.2E+00 (N)	2.5E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	9.2E-01	1.2E+00 (N)	2.4E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	1.3E+00	1.8E+00 (N)	3.5E+00	1.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.0E-01	6.7E-01 (N)	1.4E+00	6.7E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E+00	8.5E-01 (G)	4.1E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	(a)
	Carbazole	mg/kg	1.4E-01	1.5E-01 (NP)	2.1E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	1.8E-01 (N)	3.4E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.2E-01	1.6E-01 (NP)	1.7E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	(a)
	Indeno(1,2,3-cd)pyrene	mg/kg	6.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approx. Gamma UCL	
	Phenanthrene	mg/kg	8.9E-01	1.2E+00 (N)	2.2E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.3E-01	5.2E-01 (G)	1.6E+00	5.2E-01	mg/kg	95% KM (BCA) UCL	
	Dieldrin	mg/kg	2.2E-01	4.5E-01 (G)	7.0E-01	4.5E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	6.8E+03	7.7E+03 (G)	1.2E+04	7.7E+03	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	2.5E+00	1.1E+00 (N)	2.2E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	8.9E+00	1.2E+01 (G)	2.6E+01	1.2E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.6E+00	3.8E+00 (G)	1.1E+01	3.8E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.2E+02	2.2E+02 (LN)	5.6E+02	2.2E+02	mg/kg	95% H-UCL	
	Cobalt	mg/kg	3.7E+00	4.2E+00 (NP)	6.3E+00	4.2E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	9.8E+01	1.3E+02 (G)	2.8E+02	1.3E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.3E+04	1.6E+04 (G)	2.8E+04	1.6E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	1.4E+02	2.1E+02 (G)	4.6E+02	See Appendix Z			
	Manganese	mg/kg	2.6E+02	4.7E+02 (NP)	9.9E+02	4.7E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	5.0E-01	7.9E-01 (G)	2.4E+00	7.9E-01	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	2.4E-01	1.8E-01 (N)	2.6E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	2.1E+01	2.5E+01 (G)	4.8E+01	2.5E+01	mg/kg	95% Approx. Gamma UCL	
	Zinc	mg/kg	8.8E+01	1.2E+02 (LN)	2.9E+02	1.2E+02	mg/kg	95% H-UCL	

TABLE 3.1.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.1.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Quinnville Wellfield									
	Benzo(a)anthracene	mg/kg	9.3E-01	1.2E+00 (N)	2.5E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	9.2E-01	1.2E+00 (N)	2.4E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	1.3E+00	1.8E+00 (N)	3.5E+00	1.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.0E-01	6.7E-01 (N)	1.4E+00	6.7E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E+00	8.5E-01 (G)	4.1E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	(a)
	Carbazole	mg/kg	1.4E-01	1.5E-01 (NP)	2.1E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	1.8E-01 (N)	3.4E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.2E-01	1.6E-01 (NP)	1.7E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	(a)
	Indeno(1,2,3-cd)pyrene	mg/kg	6.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approx. Gamma UCL	
	Phenanthrene	mg/kg	8.9E-01	1.2E+00 (N)	2.2E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.3E-01	5.2E-01 (G)	1.6E+00	5.2E-01	mg/kg	95% KM (BCA) UCL	
	Dieldrin	mg/kg	2.2E-01	4.5E-01 (G)	7.0E-01	4.5E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	6.8E+03	7.7E+03 (G)	1.2E+04	7.7E+03	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	2.5E+00	1.1E+00 (N)	2.2E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	8.9E+00	1.2E+01 (G)	2.6E+01	1.2E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.6E+00	3.8E+00 (G)	1.1E+01	3.8E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.2E+02	2.2E+02 (LN)	5.6E+02	2.2E+02	mg/kg	95% H-UCL	
	Cobalt	mg/kg	3.7E+00	4.2E+00 (NP)	6.3E+00	4.2E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	9.8E+01	1.3E+02 (G)	2.8E+02	1.3E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.3E+04	1.6E+04 (G)	2.8E+04	1.6E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	1.4E+02	2.1E+02 (G)	4.6E+02	See Appendix Z			
	Manganese	mg/kg	2.6E+02	4.7E+02 (NP)	9.9E+02	4.7E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	5.0E-01	7.9E-01 (G)	2.4E+00	7.9E-01	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	2.4E-01	1.8E-01 (N)	2.6E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	2.1E+01	2.5E+01 (G)	4.8E+01	2.5E+01	mg/kg	95% Approx. Gamma UCL	
	Zinc	mg/kg	8.8E+01	1.2E+02 (LN)	2.9E+02	1.2E+02	mg/kg	95% H-UCL	

TABLE 3.1.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.2.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill									
	Benzo(a)anthracene	mg/kg	1.3E+00	1.9E+00 (G)	5.4E+00	1.9E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	1.2E+00	3.4E+00 (NP)	4.5E+00	3.4E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	1.9E+00	2.3E+00 (N)	5.3E+00	2.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	6.4E-01	7.8E-01 (N)	1.4E+00	7.8E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.6E+00	2.3E+00 (N)	5.6E+00	2.3E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	1.9E-01	2.2E-01 (NP)	4.4E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.8E-01	3.3E-01 (G)	6.8E-01 (J)	3.3E-01	mg/kg	95% KM (BCA) UCL	
	Dibenzofuran	mg/kg	1.0E-01	1.3E-01 (NP)	3.9E-01 (J)	1.3E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.1E-01	1.0E+00 (N)	2.3E+00	1.0E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.7E+00	6.8E+00 (NP)	1.1E+01	6.8E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Aroclor-1248	mg/kg	NC	NC	6.2E+00 (J)	6.2E+00	mg/kg	Maximum Concentration	(b)
	Aroclor-1254	mg/kg	8.6E-01	5.4E-01 (N)	2.5E+00	5.4E-01	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	1.9E-01	1.8E-01 (N)	3.0E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	1.7E-02	2.0E-02 (G)	3.8E-02	2.0E-02	mg/kg	95% KM (BCA) UCL	
	Dioxin TEQ	mg/kg	3.2E-05	NC	5.9E-05	5.9E-05	mg/kg	Maximum Concentration	(c)
	Aluminum	mg/kg	7.8E+03	8.9E+03 (N)	1.5E+04	8.9E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	1.3E+01	1.6E+01 (N)	2.5E+01 (J)	1.6E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	8.3E+00	1.1E+01 (G)	2.4E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.0E+02	1.2E+02 (N)	2.4E+02	1.2E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.7E+00	NC	3.6E+00 (J)	3.6E+00	mg/kg	Maximum Concentration	(b)
	Copper	mg/kg	1.7E+02	2.0E+02 (N)	3.8E+02	2.0E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	2.2E+04	2.7E+04 (G)	8.0E+04 (J)	2.7E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	2.0E+02	2.6E+02 (G)	7.1E+02 (J)	See Appendix Z			
	Manganese	mg/kg	5.7E+02	6.9E+02 (N)	1.1E+03	6.9E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	4.1E-01	5.0E-01 (N)	9.0E-01	5.0E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.4E+00	1.1E+00 (N)	1.8E+00 J)	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Vanadium	mg/kg	2.3E+01	2.9E+01 (NP)	8.3E+01 (J)	2.9E+01	mg/kg	95% Student's-t UCL	
	Zinc	mg/kg	3.7E+02	9.1E+02 (NP)	2.6E+03 (J)	9.1E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	

TABLE 3.2.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.2.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill									
	Benzo(a)anthracene	mg/kg	1.3E+00	1.9E+00 (G)	5.4E+00	1.9E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	1.2E+00	3.4E+00 (NP)	4.5E+00	3.4E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	1.9E+00	2.3E+00 (N)	5.3E+00	2.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	6.4E-01	7.8E-01 (N)	1.4E+00	7.8E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.6E+00	2.3E+00 (N)	5.6E+00	2.3E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	1.9E-01	2.2E-01 (NP)	4.4E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.8E-01	3.3E-01 (G)	6.8E-01 (J)	3.3E-01	mg/kg	95% KM (BCA) UCL	
	Dibenzofuran	mg/kg	1.0E-01	1.3E-01 (NP)	3.9E-01 (J)	1.3E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.1E-01	1.0E+00 (N)	2.3E+00	1.0E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.7E+00	6.8E+00 (NP)	1.1E+01	6.8E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Aroclor-1248	mg/kg	NC	NC	6.2E+00 (J)	6.2E+00	mg/kg	Maximum Concentration	(b)
	Aroclor-1254	mg/kg	8.6E-01	5.4E-01 (N)	2.5E+00	5.4E-01	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	1.9E-01	1.8E-01 (N)	3.0E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	1.7E-02	2.0E-02 (G)	3.8E-02	2.0E-02	mg/kg	95% KM (BCA) UCL	
	Dioxin TEQ	mg/kg	3.2E-05	NC	5.9E-05	3.2E-05	mg/kg	Arithmetic Mean	(e)
	Aluminum	mg/kg	7.8E+03	8.9E+03 (N)	1.5E+04	8.9E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	1.3E+01	1.6E+01 (N)	2.5E+01 (J)	1.6E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	8.3E+00	1.1E+01 (G)	2.4E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.0E+02	1.2E+02 (N)	2.4E+02	1.2E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.7E+00	NC	3.6E+00 (J)	3.6E+00	mg/kg	Maximum Concentration	(f)
	Copper	mg/kg	1.7E+02	2.0E+02 (N)	3.8E+02	2.0E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	2.2E+04	2.7E+04 (G)	8.0E+04 (J)	2.7E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	2.0E+02	2.6E+02 (G)	7.1E+02 (J)	See Appendix Z			
	Manganese	mg/kg	5.7E+02	6.9E+02 (N)	1.1E+03	6.9E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	4.1E-01	5.0E-01 (N)	9.0E-01	5.0E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.4E+00	1.1E+00 (N)	1.8E+00 J)	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Vanadium	mg/kg	2.3E+01	2.9E+01 (NP)	8.3E+01 (J)	2.9E+01	mg/kg	95% Student's-t UCL	
	Zinc	mg/kg	3.7E+02	9.1E+02 (NP)	2.6E+03 (J)	9.1E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	

TABLE 3.2.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.3.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank									
	Benzo(a)anthracene	mg/kg	1.8E+00	NC	2.3E+00 (J)	2.3E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	1.8E+00	NC	2.4E+00 (J)	2.4E+00	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	2.3E+00	NC	3.3E+00	3.3E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	8.7E-01	1.0E+00 (N)	1.2E+00 (J)	1.0E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.9E+00	NC	9.0E+00	9.0E+00	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	2.3E-01	2.8E-01 (N)	3.3E-01 (J)	2.8E-01	mg/kg	95% Student's-t UCL	
	Dibenz(a,h)anthracene	mg/kg	3.6E-01	NC	4.9E-01 (J)	4.9E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	8.3E-02	8.8E-02 (N)	9.5E-02 (J)	8.8E-02	mg/kg	95% Student's-t UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.1E+00	NC	1.5E+00	1.5E+00	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	1.9E+00	NC	2.4E+00	2.4E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.1E-01	NC	5.5E-01 (J)	5.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	1.5E-01	NC	5.0E-01	5.0E-01	mg/kg	Maximum concentration	(c)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.5E+03	NC	9.1E+03	9.1E+03	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.9E+00	NC	1.3E+01	1.3E+01	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	4.9E+00	NC	9.2E+00	9.2E+00	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	1.1E+02	NC	1.6E+02	1.6E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.5E+02	NC	2.0E+02	2.0E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.7E+04	NC	2.1E+04	2.1E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	1.7E+02	NC	2.2E+02	See Appendix Z			
	Manganese	mg/kg	5.0E+02	NC	9.9E+02	9.9E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	3.7E-01	NC	5.0E-01	5.0E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	1.2E+00	NC	1.5E+00 (J)	1.5E+00	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	2.0E+01	NC	2.4E+01	2.4E+01	mg/kg	Maximum concentration	(c)
	Zinc	mg/kg	1.7E+02	NC	2.8E+02	2.8E+02	mg/kg	Maximum concentration	(c)

TABLE 3.3.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.3.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank									
	Benzo(a)anthracene	mg/kg	1.8E+00	NC	2.3E+00 (J)	1.8E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(a)pyrene	mg/kg	1.8E+00	NC	2.4E+00 (J)	1.8E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(b)fluoranthene	mg/kg	2.3E+00	NC	3.3E+00	2.3E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	mg/kg	8.7E-01	1.0E+00 (N)	1.2E+00 (J)	1.0E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.9E+00	NC	9.0E+00	1.9E+00	mg/kg	Arithmetic Mean	(e)
	Carbazole	mg/kg	2.3E-01	2.8E-01 (N)	3.3E-01 (J)	2.8E-01	mg/kg	95% Student's-t UCL	
	Dibenz(a,h)anthracene	mg/kg	3.6E-01	NC	4.9E-01 (J)	3.6E-01	mg/kg	Arithmetic Mean	(e)
	Dibenzofuran	mg/kg	8.3E-02	8.8E-02 (N)	9.5E-02 (J)	8.8E-02	mg/kg	95% Student's-t UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.1E+00	NC	1.5E+00	1.1E+00	mg/kg	Arithmetic Mean	(e)
	Phenanthrene	mg/kg	1.9E+00	NC	2.4E+00	1.9E+00	mg/kg	Arithmetic Mean	(e)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.1E-01	NC	5.5E-01 (J)	3.1E-01	mg/kg	Arithmetic Mean	(e)
	Dieldrin	mg/kg	1.5E-01	NC	5.0E-01	1.5E-01	mg/kg	Arithmetic Mean	(e)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.5E+03	NC	9.1E+03	7.5E+03	mg/kg	Arithmetic Mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.9E+00	NC	1.3E+01	9.9E+00	mg/kg	Arithmetic Mean	(e)
	Cadmium	mg/kg	4.9E+00	NC	9.2E+00	4.9E+00	mg/kg	Arithmetic Mean	(e)
	Chromium	mg/kg	1.1E+02	NC	1.6E+02	1.1E+02	mg/kg	Arithmetic Mean	(e)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.5E+02	NC	2.0E+02	1.5E+02	mg/kg	Arithmetic Mean	(e)
	Iron	mg/kg	1.7E+04	NC	2.1E+04	1.7E+04	mg/kg	Arithmetic Mean	(e)
	Lead	mg/kg	1.7E+02	NC	2.2E+02	See Appendix Z			
	Manganese	mg/kg	5.0E+02	NC	9.9E+02	5.0E+02	mg/kg	Arithmetic Mean	(e)
	Mercury	mg/kg	3.7E-01	NC	5.0E-01	3.7E-01	mg/kg	Arithmetic Mean	(e)
	Thallium	mg/kg	1.2E+00	NC	1.5E+00 (J)	1.2E+00	mg/kg	Arithmetic Mean	(e)
	Vanadium	mg/kg	2.0E+01	NC	2.4E+01	2.0E+01	mg/kg	Arithmetic Mean	(e)
	Zinc	mg/kg	1.7E+02	NC	2.8E+02	1.7E+02	mg/kg	Arithmetic Mean	(e)

TABLE 3.3.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.4.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill (Debris Fields)									
	Benzo(a)anthracene	mg/kg	1.3E+00	NC	2.4E+00 (J)	2.4E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	1.1E+00	NC	2.0E+00 (J)	2.0E+00	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	2.0E+00	NC	3.5E+00	3.5E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	7.9E-01	1.2E+00 (N)	1.8E+00 (J)	1.2E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.5E+00	NC	4.8E+00 (J)	4.8E+00	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	1.6E-01	2.1E-01 (NP)	2.3E-01 (J)	2.1E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.6E-01	NC	5.1E-01 (J)	5.1E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	1.2E-01	9.5E-02 (NP)	9.8E-02 (J)	9.5E-02	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	7.1E-01	NC	1.4E+00 (J)	1.4E+00	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	1.4E+00	NC	2.3E+00	2.3E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	7.8E-02	NC	2.4E-01 (J)	2.4E-01	mg/kg	Maximum concentration	(c)
	Aroclor-1260	mg/kg	1.2E-01	NC	3.5E-01 (J)	3.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	5.2E-02	NC	1.2E-01 (J)	1.2E-01	mg/kg	Maximum concentration	(c)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.1E+03	NC	1.1E+04	1.1E+04	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.0E+00	NC	1.6E+01	1.6E+01	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	3.5E+00	NC	8.9E+00	8.9E+00	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	9.4E+01	NC	1.7E+02	1.7E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.2E+02	NC	2.3E+02	2.3E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.5E+04	NC	2.6E+04	2.6E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	1.5E+02	NC	2.5E+02	See Appendix Z			
	Manganese	mg/kg	3.6E+02	NC	9.6E+02	9.6E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	3.3E-01	NC	6.0E-01	6.0E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	9.8E-01	NC	1.8E+00 (J)	1.8E+00	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	2.1E+01	NC	3.1E+01	3.1E+01	mg/kg	Maximum concentration	(c)
	Zinc	mg/kg	1.5E+02	NC	2.7E+02	2.7E+02	mg/kg	Maximum concentration	(c)

TABLE 3.4.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.4.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill (Debris Fields)									
	Benzo(a)anthracene	mg/kg	1.3E+00	NC	2.4E+00 (J)	1.3E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(a)pyrene	mg/kg	1.1E+00	NC	2.0E+00 (J)	1.1E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(b)fluoranthene	mg/kg	2.0E+00	NC	3.5E+00	2.0E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	mg/kg	7.9E-01	1.2E+00 (N)	1.8E+00 (J)	1.2E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.5E+00	NC	4.8E+00 (J)	1.5E+00	mg/kg	Arithmetic Mean	(e)
	Carbazole	mg/kg	1.6E-01	2.1E-01 (NP)	2.3E-01 (J)	2.1E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.6E-01	NC	5.1E-01 (J)	2.6E-01	mg/kg	Arithmetic Mean	(e)
	Dibenzofuran	mg/kg	1.2E-01	9.5E-02 (NP)	9.8E-02 (J)	9.5E-02	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	7.1E-01	NC	1.4E+00 (J)	7.1E-01	mg/kg	Arithmetic Mean	(e)
	Phenanthrene	mg/kg	1.4E+00	NC	2.3E+00	1.4E+00	mg/kg	Arithmetic Mean	(e)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	7.8E-02	NC	2.4E-01 (J)	7.8E-02	mg/kg	Arithmetic Mean	(e)
	Aroclor-1260	mg/kg	1.2E-01	NC	3.5E-01 (J)	1.2E-01	mg/kg	Arithmetic Mean	(e)
	Dieldrin	mg/kg	5.2E-02	NC	1.2E-01 (J)	5.2E-02	mg/kg	Arithmetic Mean	(e)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.1E+03	NC	1.1E+04	7.1E+03	mg/kg	Arithmetic Mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.0E+00	NC	1.6E+01	9.0E+00	mg/kg	Arithmetic Mean	(e)
	Cadmium	mg/kg	3.5E+00	NC	8.9E+00	3.5E+00	mg/kg	Arithmetic Mean	(e)
	Chromium	mg/kg	9.4E+01	NC	1.7E+02	9.4E+01	mg/kg	Arithmetic Mean	(e)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.2E+02	NC	2.3E+02	1.2E+02	mg/kg	Arithmetic Mean	(e)
	Iron	mg/kg	1.5E+04	NC	2.6E+04	1.5E+04	mg/kg	Arithmetic Mean	(e)
	Lead	mg/kg	1.5E+02	NC	2.5E+02	See Appendix Z			
	Manganese	mg/kg	3.6E+02	NC	9.6E+02	3.6E+02	mg/kg	Arithmetic Mean	(e)
	Mercury	mg/kg	3.3E-01	NC	6.0E-01	3.3E-01	mg/kg	Arithmetic Mean	(e)
	Thallium	mg/kg	9.8E-01	NC	1.8E+00 (J)	9.8E-01	mg/kg	Arithmetic Mean	(e)
	Vanadium	mg/kg	2.1E+01	NC	3.1E+01	2.1E+01	mg/kg	Arithmetic Mean	(e)
	Zinc	mg/kg	1.5E+02	NC	2.7E+02	1.5E+02	mg/kg	Arithmetic Mean	(e)

TABLE 3.4.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, arithmetic means were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.5.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel									
	Benzo(a)anthracene	mg/kg	2.0E+00	2.7E+00 (G)	5.8E+00	2.7E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	2.1E+00	3.4E+00 (NP)	5.4E+00	3.4E+00	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	2.8E+00	3.5E+00 (N)	6.9E+00	3.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	8.8E-01	1.6E+00 (NP)	3.0E+00	1.6E+00	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	3.6E-01	4.4E-01 (NP)	1.6E+00	4.4E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	4.4E-01	5.3E-01 (N)	8.1E-01	5.3E-01	mg/kg	95% Student's-t UCL	
	Dibenzofuran	mg/kg	1.7E-01	2.2E-01 (NP)	7.6E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E+00	1.6E+00 (N)	2.8E+00 (J)	1.6E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	3.0E+00	6.8E+00 (LN)	1.5E+01	6.8E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Aroclor-1260	mg/kg	3.7E-01	3.7E-01 (N)	5.5E-01 (J)	3.7E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.5E-02	1.3E-01 (G)	3.1E-01	1.3E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	4.5E-05	mg/kg	Maximum Concentration	(c)
	Aluminum	mg/kg	9.0E+03	1.1E+04 (N)	1.6E+04	1.1E+04	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	1.4E+01	1.7E+01 (N)	2.8E+01	1.7E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	7.0E+00	1.1E+01 (G)	1.9E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.4E+02	2.2E+02 (G)	3.5E+02	2.2E+02	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.1E+01	1.2E+01 (NP)	1.9E+01	1.2E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	2.3E+02	3.4E+02 (G)	8.3E+02	3.4E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	2.1E+04	2.5E+04 (N)	3.9E+04	2.5E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	3.9E+02	8.3E+02 (LN)	2.4E+03	See Appendix Z			
	Manganese	mg/kg	6.5E+02	9.5E+02 (G)	1.9E+03	9.5E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	4.9E-01	6.2E-01 (N)	1.0E+00 (J)	6.2E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.9E+00	1.9E+00 (N)	3.3E+00 (J)	1.9E+00	mg/kg	95% KM (t) UCL	

TABLE 3.5.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.5.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel									
	Benzo(a)anthracene	mg/kg	2.0E+00	2.7E+00 (G)	5.8E+00	2.7E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	2.1E+00	3.4E+00 (NP)	5.4E+00	3.4E+00	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	2.8E+00	3.5E+00 (N)	6.9E+00	3.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	8.8E-01	1.6E+00 (NP)	3.0E+00	1.6E+00	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	3.6E-01	4.4E-01 (NP)	1.6E+00	4.4E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	4.4E-01	5.3E-01 (N)	8.1E-01	5.3E-01	mg/kg	95% Student's-t UCL	
	Dibenzofuran	mg/kg	1.7E-01	2.2E-01 (NP)	7.6E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E+00	1.6E+00 (N)	2.8E+00 (J)	1.6E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	3.0E+00	6.8E+00 (LN)	1.5E+01	6.8E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Aroclor-1260	mg/kg	3.7E-01	3.7E-01 (N)	5.5E-01 (J)	3.7E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.5E-02	1.3E-01 (G)	3.1E-01	1.3E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	3.7E-05	mg/kg	Arithmetic Mean	(e)
	Aluminum	mg/kg	9.0E+03	1.1E+04 (N)	1.6E+04	1.1E+04	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	1.4E+01	1.7E+01 (N)	2.8E+01	1.7E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	7.0E+00	1.1E+01 (G)	1.9E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.4E+02	2.2E+02 (G)	3.5E+02	2.2E+02	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.1E+01	1.2E+01 (NP)	1.9E+01	1.2E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	2.3E+02	3.4E+02 (G)	8.3E+02	3.4E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	2.1E+04	2.5E+04 (N)	3.9E+04	2.5E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	3.9E+02	8.3E+02 (LN)	2.4E+03	See Appendix Z			
	Manganese	mg/kg	6.5E+02	9.5E+02 (G)	1.9E+03	9.5E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	4.9E-01	6.2E-01 (N)	1.0E+00 (J)	6.2E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.9E+00	1.9E+00 (N)	3.3E+00 (J)	1.9E+00	mg/kg	95% KM (t) UCL	

TABLE 3.5.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.6.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel									
	Benzo(a)anthracene	mg/kg	2.5E+00	5.3E+00 (NP)	2.2E+01	5.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.6E+00	5.2E+00 (NP)	2.1E+01	5.2E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	3.1E+00	6.3E+00 (NP)	2.4E+01	6.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(g,h,i)perylene	mg/kg	1.6E+00	3.1E+00 (NP)	1.3E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(k)fluoranthene	mg/kg	1.0E+00	1.1E+00 (NP)	4.9E+00	1.1E+00	mg/kg	95% KM (BCA) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	4.9E+01	4.2E+02 (NP)	1.3E+03	4.2E+02	mg/kg	99% KM (Chebyshev) UCL	
	Carbazole	mg/kg	4.9E-01	4.7E-01 (NP)	2.0E+00	4.7E-01	mg/kg	95% KM (t) UCL	
	Chrysene	mg/kg	2.3E+00	4.4E+00 (NP)	1.8E+01	4.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Dibenz(a,h)anthracene	mg/kg	6.1E-01	7.4E-01 (NP)	4.4E+00	7.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenzofuran	mg/kg	2.5E-01	2.4E-01 (NP)	9.2E-01	2.4E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.7E+00	3.1E+00 (NP)	1.2E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Phenanthrene	mg/kg	3.5E+00	8.5E+00 (NP)	2.1E+01	8.5E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1248	mg/kg	NC	NC	3.6E-01	3.6E-01	mg/kg	Maximum concentration	(b)
	Aroclor-1254	mg/kg	2.1E-01	1.7E-01 (NP)	1.0E+00 (J)	1.7E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Aroclor-1260	mg/kg	2.8E-01	2.5E-01 (NP)	5.5E-01 (J)	2.5E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dieldrin	mg/kg	5.1E-02	1.7E-01 (NP)	3.1E-01	1.7E-01	mg/kg	99% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	4.5E-05	mg/kg	Maximum Concentration	(c)
	Aluminum	mg/kg	7.6E+03	8.7E+03 (N)	1.6E+04	8.7E+03	mg/kg	95% Modified-t UCL	
	Arsenic	mg/kg	1.1E+01	1.3E+01 (G)	2.8E+01	1.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	5.0E+00	8.9E+00 (NP)	1.9E+01	8.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	1.0E+02	2.9E+02 (NP)	3.5E+02	2.9E+02	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	7.1E+00	7.5E+00 (NP)	1.9E+01	7.5E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	1.8E+02	2.6E+02 (G)	8.3E+02	2.6E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.9E+04	2.9E+04 (NP)	5.5E+04	2.9E+04	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	5.3E+02	1.4E+03 (LN)	5.5E+03	See Appendix Z			
	Manganese	mg/kg	4.7E+02	8.4E+02 (NP)	1.9E+03	8.4E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	4.0E-01	6.8E-01 (NP)	1.7E+00	6.8E-01	mg/kg	95% KM (Chebyshev) UCL	
	Thallium	mg/kg	2.5E+00	2.3E+00 (NP)	7.0E+00 (J)	2.3E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Vanadium	mg/kg	2.3E+01	2.8E+01 (NP)	1.0E+02	2.8E+01	mg/kg	95% KM (BCA) UCL	
	Zinc	mg/kg	3.9E+02	5.4E+02 (G)	2.5E+03 (J)	5.4E+02	mg/kg	95% Approx. Gamma UCL	

TABLE 3.6.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.6.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel									
	Benzo(a)anthracene	mg/kg	2.5E+00	5.3E+00 (NP)	2.2E+01	5.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.6E+00	5.2E+00 (NP)	2.1E+01	5.2E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	3.1E+00	6.3E+00 (NP)	2.4E+01	6.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(g,h,i)perylene	mg/kg	1.6E+00	3.1E+00 (NP)	1.3E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(k)fluoranthene	mg/kg	1.0E+00	1.1E+00 (NP)	4.9E+00	1.1E+00	mg/kg	95% KM (BCA) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	4.9E+01	4.2E+02 (NP)	1.3E+03	4.2E+02	mg/kg	99% KM (Chebyshev) UCL	
	Carbazole	mg/kg	4.9E-01	4.7E-01 (NP)	2.0E+00	4.7E-01	mg/kg	95% KM (t) UCL	
	Chrysene	mg/kg	2.3E+00	4.4E+00 (NP)	1.8E+01	4.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Dibenz(a,h)anthracene	mg/kg	6.1E-01	7.4E-01 (NP)	4.4E+00	7.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenzofuran	mg/kg	2.5E-01	2.4E-01 (NP)	9.2E-01	2.4E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.7E+00	3.1E+00 (NP)	1.2E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Phenanthrene	mg/kg	3.5E+00	8.5E+00 (NP)	2.1E+01	8.5E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1248	mg/kg	NC	NC	3.6E-01	3.6E-01	mg/kg	Maximum concentration	(b)
	Aroclor-1254	mg/kg	2.1E-01	1.7E-01 (NP)	1.0E+00 (J)	1.7E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Aroclor-1260	mg/kg	2.8E-01	2.5E-01 (NP)	5.5E-01 (J)	2.5E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dieldrin	mg/kg	5.1E-02	1.7E-01 (NP)	3.1E-01	1.7E-01	mg/kg	99% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	3.7E-05	mg/kg	Arithmetic Mean	(e)
	Aluminum	mg/kg	7.6E+03	8.7E+03 (N)	1.6E+04	8.7E+03	mg/kg	95% Modified-t UCL	
	Arsenic	mg/kg	1.1E+01	1.3E+01 (G)	2.8E+01	1.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	5.0E+00	8.9E+00 (NP)	1.9E+01	8.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	1.0E+02	2.9E+02 (NP)	3.5E+02	2.9E+02	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	7.1E+00	7.5E+00 (NP)	1.9E+01	7.5E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	1.8E+02	2.6E+02 (G)	8.3E+02	2.6E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.9E+04	2.9E+04 (NP)	5.5E+04	2.9E+04	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	5.3E+02	1.4E+03 (LN)	5.5E+03	See Appendix Z			
	Manganese	mg/kg	4.7E+02	8.4E+02 (NP)	1.9E+03	8.4E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	4.0E-01	6.8E-01 (NP)	1.7E+00	6.8E-01	mg/kg	95% KM (Chebyshev) UCL	
	Thallium	mg/kg	2.5E+00	2.3E+00 (NP)	7.0E+00 (J)	2.3E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Vanadium	mg/kg	2.3E+01	2.8E+01 (NP)	1.0E+02	2.8E+01	mg/kg	95% KM (BCA) UCL	
	Zinc	mg/kg	3.9E+02	5.4E+02 (G)	2.5E+03 (J)	5.4E+02	mg/kg	95% Approx. Gamma UCL	

TABLE 3.6.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.7.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill									
	4-Methylphenol	ug/L	NC	NC	1.1E+00	1.1E+00	ug/L	Maximum concentration	(b)
	Acenaphthylene	ug/L	1.7E-02	1.7E-02 (NP)	1.9E-02	1.7E-02	ug/L	95% KM (t) UCL	(a)
	Atrazine	ug/L	NC	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	(b)
	Benzo(a)anthracene	ug/L	5.0E-02	3.1E-02 (N)	1.1E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	6.5E-01	7.7E-01 (N)	1.0E+00	7.7E-01	ug/L	95% KM (t) UCL	(a)
	Chrysene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenzofuran	ug/L	NC	NC	4.2E-01 (J)	4.2E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	2.9E-01	2.3E-01 (G)	9.8E-01	2.3E-01	ug/L	95% KM (t) UCL	
	N-Nitrosodiphenylamine	ug/L	2.3E+00	2.4E+00 (NP)	4.7E+00 (J)	2.4E+00	ug/L	95% KM (t) UCL	
	Pentachlorophenol	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	3.3E-01	1.6E-01 (N)	9.5E-01	1.6E-01	ug/L	95% KM (t) UCL	(a)
	1,4-Dichlorobenzene	ug/L	1.7E+00	1.8E+00 (G)	3.6E+00	1.8E+00	ug/L	95% KM (BCA) UCL	
	Benzene	ug/L	1.2E+02	6.4E+02 (NP)	1.1E+03	6.4E+02	ug/L	99% KM (Chebyshev) UCL	
	Chlorobenzene	ug/L	1.5E+01	1.4E+01 (N)	2.8E+01	1.4E+01	ug/L	95% KM (t) UCL	
	Ethylbenzene	ug/L	1.2E+00	1.1E+00 (NP)	1.4E+00	1.1E+00	ug/L	95% KM (t) UCL	
	Xylene (total)	ug/L	5.3E+00	3.0E+00 (NP)	1.7E+01	3.0E+00	ug/L	95% KM (t) UCL	
	Total PCBs	ug/L	2.6E-01	2.0E-01 (NP)	3.3E-01 (J)	2.0E-01	ug/L	95% KM (t) UCL	(a)
	4,4'-DDD	ug/L	2.8E-03	NC	5.0E-03 (J)	5.0E-03	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	4.7E-03	4.1E-03 (NP)	5.6E-03 (J)	4.1E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-BHC	ug/L	NC	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	9.9E+01	9.9E+01 (N)	2.6E+02 (J)	9.9E+01	ug/L	95% KM (t) UCL	
	Antimony	ug/L	6.6E-01	6.6E-01 (NP)	7.3E-01	6.6E-01	ug/L	95% KM (t) UCL	(a)

TABLE 3.7.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Arsenic	ug/L	4.3E+01	6.9E+01 (G)	1.2E+02	6.9E+01	ug/L	95% Approx. Gamma UCL	
	Barium	ug/L	2.6E+02	2.8E+02 (N)	6.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Beryllium	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cadmium	ug/L	6.5E-01	3.8E-01 (N)	1.4E+00 (J)	3.8E-01	ug/L	95% KM (t) UCL	(a)
	Chromium	ug/L	2.2E+00	2.1E+00 (G)	5.6E+00	2.1E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	1.5E+00	2.3E+00 (G)	3.4E+00	2.3E+00	ug/L	95% KM (t) UCL	
	Copper	ug/L	1.3E+00	1.2E+00 (N)	1.5E+00	1.2E+00	ug/L	95% KM (t) UCL	(a)
	Cyanide	ug/L	2.6E+00	3.1E+00 (N)	2.8E+00 (J)	2.8E+00	ug/L	Maximum concentration	(d)
	Iron	ug/L	3.2E+04	3.8E+04 (N)	6.4E+04 (J)	3.8E+04	ug/L	99% KM (Chebyshev) UCL	
	Lead	ug/L	8.0E-01	8.3E-01 (N)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.1E+03	1.8E+03 (LN)	5.8E+03	1.8E+03	ug/L	95% Student's-t UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Nickel	ug/L	1.1E+01	9.6E+00 (N)	1.6E+01	9.6E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	9.1E+00	7.3E+00 (N)	1.4E+01 (J)	7.3E+00	ug/L	95% KM (t) UCL	(a)
	Thallium	ug/L	4.8E+00	3.5E+00 (N)	8.5E+00 (J)	3.5E+00	ug/L	95% KM (t) UCL	(a)
	Vanadium	ug/L	2.4E+00	2.4E+00 (G)	5.7E+00	2.4E+00	ug/L	95% KM (t) UCL	
	Zinc	ug/L	2.9E+01	2.9E+01 (NP)	2.9E+01	2.9E+01	ug/L	99% KM (Chebyshev) UCL	(a)

TABLE 3.7.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

Because there are no "true" leachate data for the site, groundwater data are used as a surrogate to evaluate potential leachate exposures. COPCs selected on Table 2.10 were used to evaluate data from a subset of groundwater data (see Appendix W for list of samples).

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only, except for 4,4'-DDD (calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.7.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill									
	4-Methylphenol	ug/L	NC	NC	1.1E+00	1.1E+00	ug/L	Maximum concentration	(b)
	Acenaphthylene	ug/L	1.7E-02	1.7E-02 (NP)	1.9E-02	1.7E-02	ug/L	95% KM (t) UCL	(a)
	Atrazine	ug/L	NC	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	(b)
	Benzo(a)anthracene	ug/L	5.0E-02	3.1E-02 (N)	1.1E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	6.5E-01	7.7E-01 (N)	1.0E+00	7.7E-01	ug/L	95% KM (t) UCL	(a)
	Chrysene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenzofuran	ug/L	NC	NC	4.2E-01 (J)	4.2E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	2.9E-01	2.3E-01 (G)	9.8E-01	2.3E-01	ug/L	95% KM (t) UCL	
	N-Nitrosodiphenylamine	ug/L	2.3E+00	2.4E+00 (NP)	4.7E+00 (J)	2.4E+00	ug/L	95% KM (t) UCL	
	Pentachlorophenol	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	3.3E-01	1.6E-01 (N)	9.5E-01	1.6E-01	ug/L	95% KM (t) UCL	(a)
	1,4-Dichlorobenzene	ug/L	1.7E+00	1.8E+00 (G)	3.6E+00	1.8E+00	ug/L	95% KM (BCA) UCL	
	Benzene	ug/L	1.2E+02	6.4E+02 (NP)	1.1E+03	6.4E+02	ug/L	99% KM (Chebyshev) UCL	
	Chlorobenzene	ug/L	1.5E+01	1.4E+01 (N)	2.8E+01	1.4E+01	ug/L	95% KM (t) UCL	
	Ethylbenzene	ug/L	1.2E+00	1.1E+00 (NP)	1.4E+00	1.1E+00	ug/L	95% KM (t) UCL	
	Xylene (total)	ug/L	5.3E+00	3.0E+00 (NP)	1.7E+01	3.0E+00	ug/L	95% KM (t) UCL	
	Total PCBs	ug/L	2.6E-01	2.0E-01 (NP)	3.3E-01 (J)	2.0E-01	ug/L	95% KM (t) UCL	(a)
	4,4'-DDD	ug/L	2.8E-03	NC	5.0E-03 (J)	2.8E-03	ug/L	Arithmetic Mean	(e)
	4,4'-DDE	ug/L	4.7E-03	4.1E-03 (NP)	5.6E-03 (J)	4.1E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-BHC	ug/L	NC	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	NA	NA	ND	ND	ug/L	NA	
	Aluminum	ug/L	9.9E+01	9.9E+01 (N)	2.6E+02 (J)	9.9E+01	ug/L	95% KM (t) UCL	
	Antimony	ug/L	6.6E-01	6.6E-01 (NP)	7.3E-01	6.6E-01	ug/L	95% KM (t) UCL	(a)

TABLE 3.7.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Arsenic	ug/L	4.3E+01	6.9E+01 (G)	1.2E+02	6.9E+01	ug/L	95% Approx. Gamma UCL	
	Barium	ug/L	2.6E+02	2.8E+02 (N)	6.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Beryllium	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cadmium	ug/L	6.5E-01	3.8E-01 (N)	1.4E+00 (J)	3.8E-01	ug/L	95% KM (t) UCL	(a)
	Chromium	ug/L	2.2E+00	2.1E+00 (G)	5.6E+00	2.1E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	1.5E+00	2.3E+00 (G)	3.4E+00	2.3E+00	ug/L	95% KM (t) UCL	
	Copper	ug/L	1.3E+00	1.2E+00 (N)	1.5E+00	1.2E+00	ug/L	95% KM (t) UCL	(a)
	Cyanide	ug/L	2.6E+00	3.1E+00 (N)	2.8E+00 (J)	2.6E+00	ug/L	Arithmetic Mean	(e)
	Iron	ug/L	3.2E+04	3.8E+04 (N)	6.4E+04 (J)	3.8E+04	ug/L	99% KM (Chebyshev) UCL	
	Lead	ug/L	8.0E-01	8.3E-01 (N)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.1E+03	1.8E+03 (LN)	5.8E+03	1.8E+03	ug/L	95% Student's-t UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Nickel	ug/L	1.1E+01	9.6E+00 (N)	1.6E+01	9.6E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	9.1E+00	7.3E+00 (N)	1.4E+01 (J)	7.3E+00	ug/L	95% KM (t) UCL	(a)
	Thallium	ug/L	4.8E+00	3.5E+00 (N)	8.5E+00 (J)	3.5E+00	ug/L	95% KM (t) UCL	(a)
	Vanadium	ug/L	2.4E+00	2.4E+00 (G)	5.7E+00	2.4E+00	ug/L	95% KM (t) UCL	
	Zinc	ug/L	2.9E+01	2.9E+01 (NP)	2.9E+01	2.9E+01	ug/L	99% KM (Chebyshev) UCL	(a)

TABLE 3.7.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

Because there are no "true" leachate data for the site, groundwater data are used as a surrogate to evaluate potential leachate exposures. COPCs selected on Table 2.10 were used to evaluate data from a subset of groundwater data (see Appendix W for list of samples).

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only, except for 4,4'-DDD (calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.8.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)									
	Benzo(a)anthracene	mg/kg	6.9E-01	1.3E+00 (G)	2.4E+00 (J)	1.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	6.5E-01	8.5E-01 (N)	1.9E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.7E-01	1.1E+00 (N)	2.5E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Benzo(k)fluoranthene	mg/kg	3.8E-01	4.9E-01 (NP)	8.4E-01	4.9E-01	mg/kg	95% KM (% Bootstrap) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.0E+00	2.6E+00 (G)	9.7E+00	2.6E+00	mg/kg	95% KM (BCA) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	8.8E-01 (J)	3.0E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.0E-01	1.3E-01 (N)	2.1E-01	1.3E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.3E-01	1.6E-01 (NP)	2.2E-01 (J)	1.6E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.5E-01	4.6E-01 (N)	1.1E+00 (J)	4.6E-01	mg/kg	95% KM (t) UCL	
	Phenanthrene	mg/kg	1.0E+00	2.4E+00 (NP)	4.6E+00	2.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	1.1E-01	7.7E-02 (N)	2.6E-01	7.7E-02	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	7.6E-02	1.6E-01 (G)	3.4E-01	1.6E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	9.4E-03	1.3E-02 (G)	3.6E-02 (J)	1.3E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	4.0E+03	4.6E+03 (N)	7.4E+03	4.6E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	5.3E-01	4.9E-01 (N)	8.5E-01 (J)	4.9E-01	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	3.9E+00	5.1E+00 (G)	1.2E+01	5.1E+00	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.1E+00	3.4E+00 (G)	8.9E+00	3.4E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	2.9E+01	4.3E+01 (G)	9.6E+01	4.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	3.5E+00	5.4E+00 (NP)	7.7E+00	5.4E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	3.7E+01	5.5E+01 (G)	1.5E+02	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	7.3E+03	8.6E+03 (G)	1.5E+04	8.6E+03	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	4.1E+01	6.4E+01 (G)	1.8E+02	See Appendix Z			
	Manganese	mg/kg	1.4E+02	1.8E+02 (G)	3.6E+02 (J)	1.8E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	1.5E-01	1.5E-01 (G)	3.5E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.0E-01	2.9E-01 (N)	4.0E-01	2.9E-01	mg/kg	95% KM (t) UCL	(a)
	Vanadium	mg/kg	1.0E+01	1.1E+01 (N)	1.8E+01	1.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.8.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.8.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)									
	Benzo(a)anthracene	mg/kg	6.9E-01	1.3E+00 (G)	2.4E+00 (J)	1.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	6.5E-01	8.5E-01 (N)	1.9E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.7E-01	1.1E+00 (N)	2.5E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Benzo(k)fluoranthene	mg/kg	3.8E-01	4.9E-01 (NP)	8.4E-01	4.9E-01	mg/kg	95% KM (% Bootstrap) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.0E+00	2.6E+00 (G)	9.7E+00	2.6E+00	mg/kg	95% KM (BCA) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	8.8E-01 (J)	3.0E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.0E-01	1.3E-01 (N)	2.1E-01	1.3E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.3E-01	1.6E-01 (NP)	2.2E-01 (J)	1.6E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.5E-01	4.6E-01 (N)	1.1E+00 (J)	4.6E-01	mg/kg	95% KM (t) UCL	
	Phenanthrene	mg/kg	1.0E+00	2.4E+00 (NP)	4.6E+00	2.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	1.1E-01	7.7E-02 (N)	2.6E-01	7.7E-02	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	7.6E-02	1.6E-01 (G)	3.4E-01	1.6E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	9.4E-03	1.3E-02 (G)	3.6E-02 (J)	1.3E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	4.0E+03	4.6E+03 (N)	7.4E+03	4.6E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	5.3E-01	4.9E-01 (N)	8.5E-01 (J)	4.9E-01	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	3.9E+00	5.1E+00 (G)	1.2E+01	5.1E+00	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.1E+00	3.4E+00 (G)	8.9E+00	3.4E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	2.9E+01	4.3E+01 (G)	9.6E+01	4.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	3.5E+00	5.4E+00 (NP)	7.7E+00	5.4E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	3.7E+01	5.5E+01 (G)	1.5E+02	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	7.3E+03	8.6E+03 (G)	1.5E+04	8.6E+03	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	4.1E+01	6.4E+01 (G)	1.8E+02	See Appendix Z			
	Manganese	mg/kg	1.4E+02	1.8E+02 (G)	3.6E+02 (J)	1.8E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	1.5E-01	1.5E-01 (G)	3.5E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.0E-01	2.9E-01 (N)	4.0E-01	2.9E-01	mg/kg	95% KM (t) UCL	(a)
	Vanadium	mg/kg	1.0E+01	1.1E+01 (N)	1.8E+01	1.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.8.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.9.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill									
	Benzo(a)anthracene	mg/kg	6.8E-01	NC	1.1E+00	1.1E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	6.2E-01	NC	9.8E-01	9.8E-01	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	7.6E-01	NC	1.2E+00	1.2E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	3.1E-01	NC	5.8E-01	5.8E-01	mg/kg	Maximum concentration	(c)
	bis(2-Ethylhexyl)phthalate	mg/kg	5.7E+00	NC	1.3E+01	1.3E+01	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	1.3E-01	NC	1.3E-01 (J)	1.3E-01	mg/kg	Maximum concentration	(c)
	Dibenz(a,h)anthracene	mg/kg	7.4E-02	NC	1.1E-01 (J)	1.1E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	1.5E-01	NC	7.2E-02 (J)	7.2E-02	mg/kg	Maximum concentration	(c)
	Indeno(1,2,3-cd)pyrene	mg/kg	2.9E-01	NC	4.1E-01	4.1E-01	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	6.2E-01	NC	1.1E+00	1.1E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	2.2E-02	NC	5.9E-02 (J)	5.9E-02	mg/kg	Maximum concentration	(c)
	Aroclor-1260	mg/kg	1.9E-01	NC	5.5E-01 (J)	5.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	2.6E-02	NC	7.4E-02 (J)	7.4E-02	mg/kg	Maximum concentration	(c)
	Aluminum	mg/kg	6.0E+03	NC	9.1E+03	9.1E+03	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	5.6E+00	NC	9.0E+00 (J)	9.0E+00	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	5.5E+00	NC	1.4E+01	1.4E+01	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	6.9E+01	NC	1.6E+02 (J)	1.6E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	6.0E+00	NC	1.1E+01	1.1E+01	mg/kg	Maximum concentration	(c)
	Copper	mg/kg	8.5E+01	NC	2.1E+02	2.1E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.0E+04	NC	1.2E+04	1.2E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	7.6E+01	NC	1.9E+02 (J)	See Appendix Z			
	Manganese	mg/kg	3.9E+02	NC	8.3E+02	8.3E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	2.2E-01	NC	4.3E-01	4.3E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	4.1E-01	NC	6.0E-01 (J)	6.0E-01	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	1.4E+01	NC	2.4E+01	2.4E+01	mg/kg	Maximum concentration	(c)

TABLE 3.9.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, maximum concentrations were used as EPCs.

(5)

(a) UCL may not be reliable due to the high frequency of non-detects present.

(b) Maximum detected concentration used for EPC due to the low number of detections.

(c) Due to small sample size, the maximum detected concentration is used.

(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.

(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.9.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill									
	Benzo(a)anthracene	mg/kg	6.8E-01	NC	1.1E+00	6.8E-01	mg/kg	Arithmetic mean	(e)
	Benzo(a)pyrene	mg/kg	6.2E-01	NC	9.8E-01	6.2E-01	mg/kg	Arithmetic mean	(e)
	Benzo(b)fluoranthene	mg/kg	7.6E-01	NC	1.2E+00	7.6E-01	mg/kg	Arithmetic mean	(e)
	Benzo(k)fluoranthene	mg/kg	3.1E-01	NC	5.8E-01	3.1E-01	mg/kg	Arithmetic mean	(e)
	bis(2-Ethylhexyl)phthalate	mg/kg	5.7E+00	NC	1.3E+01	5.7E+00	mg/kg	Arithmetic mean	(e)
	Carbazole	mg/kg	1.3E-01	NC	1.3E-01 (J)	1.3E-01	mg/kg	Arithmetic mean	(e)
	Dibenz(a,h)anthracene	mg/kg	7.4E-02	NC	1.1E-01 (J)	7.4E-02	mg/kg	Arithmetic mean	(e)
	Dibenzofuran	mg/kg	1.5E-01	NC	7.2E-02 (J)	7.2E-02	mg/kg	Maximum concentration	(f)
	Indeno(1,2,3-cd)pyrene	mg/kg	2.9E-01	NC	4.1E-01	2.9E-01	mg/kg	Arithmetic mean	(e)
	Phenanthrene	mg/kg	6.2E-01	NC	1.1E+00	6.2E-01	mg/kg	Arithmetic mean	(e)
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	2.2E-02	NC	5.9E-02 (J)	2.2E-02	mg/kg	Arithmetic mean	(e)
	Aroclor-1260	mg/kg	1.9E-01	NC	5.5E-01 (J)	1.9E-01	mg/kg	Arithmetic mean	(e)
	Dieldrin	mg/kg	2.6E-02	NC	7.4E-02 (J)	2.6E-02	mg/kg	Arithmetic mean	(e)
	Aluminum	mg/kg	6.0E+03	NC	9.1E+03	6.0E+03	mg/kg	Arithmetic mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	5.6E+00	NC	9.0E+00 (J)	5.6E+00	mg/kg	Arithmetic mean	(e)
	Cadmium	mg/kg	5.5E+00	NC	1.4E+01	5.5E+00	mg/kg	Arithmetic mean	(e)
	Chromium	mg/kg	6.9E+01	NC	1.6E+02 (J)	6.9E+01	mg/kg	Arithmetic mean	(e)
	Cobalt	mg/kg	6.0E+00	NC	1.1E+01	6.0E+00	mg/kg	Arithmetic mean	(e)
	Copper	mg/kg	8.5E+01	NC	2.1E+02	8.5E+01	mg/kg	Arithmetic mean	(e)
	Iron	mg/kg	1.0E+04	NC	1.2E+04	1.0E+04	mg/kg	Arithmetic mean	(e)
	Lead	mg/kg	7.6E+01	NC	1.9E+02 (J)	See Appendix Z			
	Manganese	mg/kg	3.9E+02	NC	8.3E+02	3.9E+02	mg/kg	Arithmetic mean	(e)
	Mercury	mg/kg	2.2E-01	NC	4.3E-01	2.2E-01	mg/kg	Arithmetic mean	(e)
	Thallium	mg/kg	4.1E-01	NC	6.0E-01 (J)	4.1E-01	mg/kg	Arithmetic mean	(e)
	Vanadium	mg/kg	1.4E+01	NC	2.4E+01	1.4E+01	mg/kg	Arithmetic mean	(e)

TABLE 3.9.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, arithmetic means were used as EPCs.

(5)

(a) UCL may not be reliable due to the high frequency of non-detects present.

(b) Maximum detected concentration used for EPC due to the low number of detections.

(c) Due to small sample size, the maximum detected concentration is used.

(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.

(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.10.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill									
	Benzo(a)anthracene	mg/kg	9.7E-01	1.3E+00 (N)	2.1E+00	1.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	9.5E-01	1.6E+00 (G)	1.9E+00 (J)	1.6E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E+00	1.5E+00 (N)	2.4E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.5E-01	7.6E-01 (N)	1.6E+00 (J)	7.6E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	7.3E+00	2.2E+01 (G)	5.8E+01 (J)	2.2E+01	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	2.0E-01	2.4E-01 (NP)	6.3E-01	2.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	2.0E-01 (N)	3.4E-01 (J)	2.0E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.6E-01	1.7E-01 (NP)	5.0E-01	1.7E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	4.8E-01	6.4E-01 (N)	1.0E+00 (J)	6.4E-01	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.2E+00	2.1E+00 (G)	5.3E+00	2.1E+00	mg/kg	95% Approx. Gamma UCL	
	Aroclor-1242	mg/kg	1.3E-01	2.4E-01 (NP)	2.5E-01 (J)	2.4E-01	mg/kg	99% KM (Chebyshev) UCL	(a)
	Aroclor-1254	mg/kg	1.4E-01	3.1E-01 (LN)	5.5E-01	3.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	1.3E-01	1.2E-01 (N)	3.1E-01	1.2E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	7.8E-03	1.7E-02 (G)	3.3E-02 (J)	1.7E-02	mg/kg	95% KM (Chebyshev) UCL	
	Aluminum	mg/kg	6.0E+03	8.7E+03 (G)	2.3E+04	8.7E+03	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	2.0E+00	1.9E+00 (N)	3.6E+00	1.9E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	2.4E+01	3.9E+01 (G)	9.2E+01 (J)	3.9E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	4.4E+00	9.9E+00 (G)	1.5E+01	9.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	5.1E+01	1.4E+02 (NP)	1.5E+02	1.4E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	3.8E+00	5.0E+00 (NP)	1.6E+01 (J)	5.0E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	7.2E+01	2.1E+02 (NP)	2.2E+02	2.1E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Iron	mg/kg	1.6E+04	2.2E+04 (G)	4.6E+04	2.2E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	7.1E+01	2.0E+02 (NP)	2.1E+02	See Appendix Z			
	Manganese	mg/kg	1.8E+02	2.7E+02 (G)	4.8E+02 (J)	2.7E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	3.4E-01	2.9E-01 (N)	5.8E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	3.6E-01	7.1E-01 (LN)	1.3E+00 (J)	7.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	(a)
	Vanadium	mg/kg	1.9E+01	2.1E+01 (N)	4.9E+01 (J)	2.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.10.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.10.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill									
	Benzo(a)anthracene	mg/kg	9.7E-01	1.3E+00 (N)	2.1E+00	1.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	9.5E-01	1.6E+00 (G)	1.9E+00 (J)	1.6E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E+00	1.5E+00 (N)	2.4E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.5E-01	7.6E-01 (N)	1.6E+00 (J)	7.6E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	7.3E+00	2.2E+01 (G)	5.8E+01 (J)	2.2E+01	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	2.0E-01	2.4E-01 (NP)	6.3E-01	2.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	2.0E-01 (N)	3.4E-01 (J)	2.0E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.6E-01	1.7E-01 (NP)	5.0E-01	1.7E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	4.8E-01	6.4E-01 (N)	1.0E+00 (J)	6.4E-01	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.2E+00	2.1E+00 (G)	5.3E+00	2.1E+00	mg/kg	95% Approx. Gamma UCL	
	Aroclor-1242	mg/kg	1.3E-01	2.4E-01 (NP)	2.5E-01 (J)	2.4E-01	mg/kg	99% KM (Chebyshev) UCL	(a)
	Aroclor-1254	mg/kg	1.4E-01	3.1E-01 (LN)	5.5E-01	3.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	1.3E-01	1.2E-01 (N)	3.1E-01	1.2E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	7.8E-03	1.7E-02 (G)	3.3E-02 (J)	1.7E-02	mg/kg	95% KM (Chebyshev) UCL	
	Aluminum	mg/kg	6.0E+03	8.7E+03 (G)	2.3E+04	8.7E+03	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	2.0E+00	1.9E+00 (N)	3.6E+00	1.9E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	2.4E+01	3.9E+01 (G)	9.2E+01 (J)	3.9E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	4.4E+00	9.9E+00 (G)	1.5E+01	9.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	5.1E+01	1.4E+02 (NP)	1.5E+02	1.4E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	3.8E+00	5.0E+00 (NP)	1.6E+01 (J)	5.0E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	7.2E+01	2.1E+02 (NP)	2.2E+02	2.1E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Iron	mg/kg	1.6E+04	2.2E+04 (G)	4.6E+04	2.2E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	7.1E+01	2.0E+02 (NP)	2.1E+02	See Appendix Z			
	Manganese	mg/kg	1.8E+02	2.7E+02 (G)	4.8E+02 (J)	2.7E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	3.4E-01	2.9E-01 (N)	5.8E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	3.6E-01	7.1E-01 (LN)	1.3E+00 (J)	7.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	(a)
	Vanadium	mg/kg	1.9E+01	2.1E+01 (N)	4.9E+01 (J)	2.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.10.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.11.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill									
	Benzo(a)anthracene	mg/kg	1.8E+00	2.6E+00 (N)	4.4E+00	2.6E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	1.9E+00	2.8E+00 (N)	4.5E+00	2.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	2.1E+00	2.9E+00 (N)	4.3E+00	2.9E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	1.3E+00	1.9E+00 (N)	3.2E+00	1.9E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.5E+00	2.9E+00 (N)	4.7E+00	2.9E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	4.6E-01	3.0E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	3.3E-01	5.1E-01 (N)	8.7E-01	5.1E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	7.8E-02	9.2E-02 (NP)	1.0E-01 (J)	9.2E-02	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	9.9E-01	1.5E+00 (N)	2.5E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.8E+00	2.5E+00 (N)	3.4E+00	2.5E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	8.7E-01	1.1E+00 (G)	2.8E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	3.0E-01	3.8E-01 (N)	7.6E-01	3.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.1E-03	6.9E-03 (N)	9.4E-03	6.9E-03	mg/kg	95% KM (t) UCL	
	Aluminum	mg/kg	5.8E+03	8.0E+03 (N)	1.2E+04	8.0E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	7.4E+00	9.5E+00 (N)	1.3E+01	9.5E+00	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	6.0E+00	1.8E+01 (G)	2.3E+01 (J)	1.8E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	8.0E+01	1.3E+02 (N)	1.9E+02 (J)	1.3E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.1E+00	6.4E+00 (NP)	8.6E+00	6.4E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	1.0E+02	1.6E+02 (N)	2.7E+02 (J)	1.6E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.4E+04	1.9E+04 (N)	3.1E+04	1.9E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.1E+02	1.6E+02 (N)	2.3E+02 (J)	See Appendix Z			
	Manganese	mg/kg	2.1E+02	2.7E+02 (N)	3.8E+02 (J)	2.7E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	3.8E-01	4.9E-01 (N)	8.6E-01	4.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.7E-01	4.1E-01 (N)	6.6E-01 (JEB)	4.1E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.5E+01	1.9E+01 (N)	2.8E+01	1.9E+01	mg/kg	95% KM (t) UCL	

TABLE 3.11.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.11.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill									
	Benzo(a)anthracene	mg/kg	1.8E+00	2.6E+00 (N)	4.4E+00	2.6E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	1.9E+00	2.8E+00 (N)	4.5E+00	2.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	2.1E+00	2.9E+00 (N)	4.3E+00	2.9E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	1.3E+00	1.9E+00 (N)	3.2E+00	1.9E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.5E+00	2.9E+00 (N)	4.7E+00	2.9E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	4.6E-01	3.0E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	3.3E-01	5.1E-01 (N)	8.7E-01	5.1E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	7.8E-02	9.2E-02 (NP)	1.0E-01 (J)	9.2E-02	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	9.9E-01	1.5E+00 (N)	2.5E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.8E+00	2.5E+00 (N)	3.4E+00	2.5E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	8.7E-01	1.1E+00 (G)	2.8E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	3.0E-01	3.8E-01 (N)	7.6E-01	3.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.1E-03	6.9E-03 (N)	9.4E-03	6.9E-03	mg/kg	95% KM (t) UCL	
	Aluminum	mg/kg	5.8E+03	8.0E+03 (N)	1.2E+04	8.0E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	7.4E+00	9.5E+00 (N)	1.3E+01	9.5E+00	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	6.0E+00	1.8E+01 (G)	2.3E+01 (J)	1.8E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	8.0E+01	1.3E+02 (N)	1.9E+02 (J)	1.3E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.1E+00	6.4E+00 (NP)	8.6E+00	6.4E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	1.0E+02	1.6E+02 (N)	2.7E+02 (J)	1.6E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.4E+04	1.9E+04 (N)	3.1E+04	1.9E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.1E+02	1.6E+02 (N)	2.3E+02 (J)	See Appendix Z			
	Manganese	mg/kg	2.1E+02	2.7E+02 (N)	3.8E+02 (J)	2.7E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	3.8E-01	4.9E-01 (N)	8.6E-01	4.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.7E-01	4.1E-01 (N)	6.6E-01 (JEB)	4.1E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.5E+01	1.9E+01 (N)	2.8E+01	1.9E+01	mg/kg	95% KM (t) UCL	

TABLE 3.11.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.12.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)									
	Benzo(a)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(a)pyrene	ug/L	NC	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.6E-01	1.5E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	1.3E-01	1.2E-01 (NP)	1.7E-01	1.2E-01	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	2.4E-03 (J)	2.4E-03	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	6.5E+02 (LN)	1.0E+03	6.5E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.6E+00	1.7E+00 (G)	2.4E+00	1.7E+00	ug/L	95% Approx. Gamma UCL	
	Cadmium	ug/L	NC	NC	6.7E-01 (J)	6.7E-01	ug/L	Maximum concentration	(b)
	Chromium	ug/L	2.8E+00	3.4E+00 (G)	1.0E+01	3.4E+00	ug/L	95% KM (BCA) UCL	
	Cobalt	ug/L	1.0E+00	8.3E-01 (NP)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	NC	NC	4.7E+00 (J)	4.7E+00	ug/L	Maximum concentration	(b)
	Iron	ug/L	1.4E+03	2.0E+03 (G)	4.9E+03	2.0E+03	ug/L	95% Approx. Gamma UCL	
	Lead	ug/L	8.7E+00	6.7E+00 (N)	2.0E+01	6.7E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	3.1E+02	4.7E+02 (LN)	1.0E+03	4.7E+02	ug/L	95% H-UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.3E+00	1.4E+00 (G)	3.2E+00	1.4E+00	ug/L	95% KM (t) UCL	

TABLE 3.12.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
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99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.12.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)									
	Benzo(a)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(a)pyrene	ug/L	NC	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.6E-01	1.5E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	1.3E-01	1.2E-01 (NP)	1.7E-01	1.2E-01	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	2.4E-03 (J)	2.4E-03	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	6.5E+02 (LN)	1.0E+03	6.5E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.6E+00	1.7E+00 (G)	2.4E+00	1.7E+00	ug/L	95% Approx. Gamma UCL	
	Cadmium	ug/L	NC	NC	6.7E-01 (J)	6.7E-01	ug/L	Maximum concentration	(b)
	Chromium	ug/L	2.8E+00	3.4E+00 (G)	1.0E+01	3.4E+00	ug/L	95% KM (BCA) UCL	
	Cobalt	ug/L	1.0E+00	8.3E-01 (NP)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	NC	NC	4.7E+00 (J)	4.7E+00	ug/L	Maximum concentration	(b)
	Iron	ug/L	1.4E+03	2.0E+03 (G)	4.9E+03	2.0E+03	ug/L	95% Approx. Gamma UCL	
	Lead	ug/L	8.7E+00	6.7E+00 (N)	2.0E+01	6.7E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	3.1E+02	4.7E+02 (LN)	1.0E+03	4.7E+02	ug/L	95% H-UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.3E+00	1.4E+00 (G)	3.2E+00	1.4E+00	ug/L	95% KM (t) UCL	

TABLE 3.12.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.13.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill									
	Benzo(a)anthracene	ug/L	7.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(a)pyrene	ug/L	8.0E-02	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(c)
	Benzo(b)fluoranthene	ug/L	1.0E-01	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(c)
	Benzo(g,h,i)perylene	ug/L	6.7E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	5.0E+00	NC	1.0E+01	1.0E+01	ug/L	Maximum concentration	(c)
	Chrysene	ug/L	8.0E-02	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	(c)
	Indeno(1,2,3-cd)pyrene	ug/L	7.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	9.0E-02	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(c)
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	4.0E-03	NC	5.8E-03 (J)	5.8E-03	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	2.0E-03	NC	4.4E-03 (J)	4.4E-03	ug/L	Maximum concentration	(c)
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	1.8E-03	NC	2.9E-03 (J)	2.9E-03	ug/L	Maximum concentration	(c)
	Aluminum	ug/L	7.3E+02	NC	2.1E+03	2.1E+03	ug/L	Maximum concentration	(c)
	Arsenic	ug/L	3.4E+00	NC	4.6E+00	4.6E+00	ug/L	Maximum concentration	(c)
	Cadmium	ug/L	3.6E-01	NC	4.7E-01 (J)	4.7E-01	ug/L	Maximum concentration	(c)
	Chromium	ug/L	3.3E+00	NC	8.5E+00	8.5E+00	ug/L	Maximum concentration	(c)
	Cobalt	ug/L	6.7E-01	NC	6.6E-01 (J)	6.6E-01	ug/L	Maximum concentration	(c)
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	1.5E+03	NC	3.7E+03 (J)	3.7E+03	ug/L	Maximum concentration	(c)
	Lead	ug/L	4.2E+00	NC	8.6E+00	8.6E+00	ug/L	Maximum concentration	(c)
	Manganese	ug/L	1.7E+02	NC	3.0E+02 (J)	3.0E+02	ug/L	Maximum concentration	(c)
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.9E+00	NC	4.2E+00	4.2E+00	ug/L	Maximum concentration	(c)

TABLE 3.13.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, maximum concentrations were used as EPCs.

(5)

(a) UCL may not be reliable due to the high frequency of non-detects present.

(b) Maximum detected concentration used for EPC due to the low number of detections.

(c) Due to small sample size, the maximum detected concentration is used.

(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.

(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.13.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill									
	Benzo(a)anthracene	ug/L	7.0E-02	NC	1.0E-01	7.0E-02	ug/L	Arithmetic mean	(e)
	Benzo(a)pyrene	ug/L	8.0E-02	NC	1.4E-01	8.0E-02	ug/L	Arithmetic mean	(e)
	Benzo(b)fluoranthene	ug/L	1.0E-01	NC	2.0E-01	1.0E-01	ug/L	Arithmetic mean	(e)
	Benzo(g,h,i)perylene	ug/L	6.7E-02	NC	1.0E-01	6.7E-02	ug/L	Arithmetic mean	(e)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	5.0E+00	NC	1.0E+01	5.0E+00	ug/L	Arithmetic mean	(e)
	Chrysene	ug/L	8.0E-02	NC	1.5E-01	8.0E-02	ug/L	Arithmetic mean	(e)
	Indeno(1,2,3-cd)pyrene	ug/L	7.0E-02	NC	1.0E-01	7.0E-02	ug/L	Arithmetic mean	(e)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	9.0E-02	NC	1.7E-01	9.0E-02	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	4.0E-03	NC	5.8E-03 (J)	4.0E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	2.0E-03	NC	4.4E-03 (J)	2.0E-03	ug/L	Arithmetic mean	(e)
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	1.8E-03	NC	2.9E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	7.3E+02	NC	2.1E+03	7.3E+02	ug/L	Arithmetic mean	(e)
	Arsenic	ug/L	3.4E+00	NC	4.6E+00	3.4E+00	ug/L	Arithmetic mean	(e)
	Cadmium	ug/L	3.6E-01	NC	4.7E-01 (J)	3.6E-01	ug/L	Arithmetic mean	(e)
	Chromium	ug/L	3.3E+00	NC	8.5E+00	3.3E+00	ug/L	Arithmetic mean	(e)
	Cobalt	ug/L	6.7E-01	NC	6.6E-01 (J)	6.6E-01	ug/L	Maximum Concentration	(f)
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	1.5E+03	NC	3.7E+03 (J)	1.5E+03	ug/L	Arithmetic mean	(e)
	Lead	ug/L	4.2E+00	NC	8.6E+00	4.2E+00	ug/L	Arithmetic mean	(e)
	Manganese	ug/L	1.7E+02	NC	3.0E+02 (J)	1.7E+02	ug/L	Arithmetic mean	(e)
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.9E+00	NC	4.2E+00	1.9E+00	ug/L	Arithmetic mean	(e)

TABLE 3.13.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) Due to the small sample size, arithmetic means were used as EPCs.

(5)

(a) UCL may not be reliable due to the high frequency of non-detects present.

(b) Maximum detected concentration used for EPC due to the low number of detections.

(c) Due to small sample size, the maximum detected concentration is used.

(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.

(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.14.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill									
	Benzo(a)anthracene	ug/L	NC	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	NC	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	NC	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	(b)
	Benzo(g,h,i)perylene	ug/L	7.0E-02	NC	2.3E-01	2.3E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	NC	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	3.0E-01	3.0E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	NC	NC	1.9E-01	1.9E-01	ug/L	Maximum concentration	(b)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	6.7E-02	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(c)
	1,4-Dichlorobenzene	ug/L	2.8E-01	NC	5.4E-01	5.4E-01	ug/L	Maximum concentration	(c)
	Benzene	ug/L	5.7E-01	NC	8.0E-01	8.0E-01	ug/L	Maximum concentration	(c)
	Aroclor-1260	ug/L	NC	NC	3.0E-01 (J)	3.0E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	1.5E-02	NC	2.5E-02 (J)	2.5E-02	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	NC	NC	1.5E-02 (J)	1.5E-02	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	1.4E-02 (J)	1.4E-02	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	NC	NC	3.7E-03 (J)	3.7E-03	ug/L	Maximum concentration	(b)
	Aluminum	ug/L	2.7E+03	1.7E+04 (NP)	2.1E+04	1.7E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	3.6E+00	1.1E+01 (NP)	1.8E+01	1.1E+01	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Cadmium	ug/L	2.7E+00	1.6E+01 (NP)	2.0E+01	1.6E+01	ug/L	97.5% KM (Chebyshev) UCL	(b)
	Chromium	ug/L	4.4E+01	2.2E+02 (NP)	2.6E+02	2.2E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Cobalt	ug/L	2.8E+00	9.2E+00 (NP)	9.2E+00 (J)	9.2E+00	ug/L	95% KM (BCA) UCL	
	Copper	ug/L	NC	NC	4.3E+02	4.3E+02	ug/L	Maximum concentration	(b)
	Cyanide	ug/L	NC	NC	1.1E+01 (J)	1.1E+01	ug/L	Maximum concentration	(b)
	Iron	ug/L	9.7E+03	4.5E+04 (NP)	5.5E+04 (J)	4.5E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	5.7E+01	2.7E+02 (NP)	3.3E+02	2.7E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Manganese	ug/L	2.2E+02	7.5E+02 (NP)	1.2E+03 (J)	7.5E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	3.9E-01	3.7E-01 (NP)	4.6E-01 (J)	3.7E-01	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	8.3E+00	4.9E+01 (NP)	6.0E+01	4.9E+01	ug/L	97.5% KM (Chebyshev) UCL	

TABLE 3.14.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 1,4-dichlorobenzene, benzo(g,h,i)perylene, and phenanthrene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.14.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill									
	Benzo(a)anthracene	ug/L	NC	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	NC	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	NC	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	(b)
	Benzo(g,h,i)perylene	ug/L	7.0E-02	NC	2.3E-01	7.0E-02	ug/L	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	ug/L	NC	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	3.0E-01	3.0E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	NC	NC	1.9E-01	1.9E-01	ug/L	Maximum concentration	(b)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	6.7E-02	NC	2.0E-01	6.7E-02	ug/L	Arithmetic Mean	(e)
	1,4-Dichlorobenzene	ug/L	2.8E-01	NC	5.4E-01	2.8E-01	ug/L	Arithmetic Mean	(e)
	Benzene	ug/L	5.7E-01	NC	8.0E-01	5.7E-01	ug/L	Arithmetic Mean	(e)
	Aroclor-1260	ug/L	NC	NC	3.0E-01 (J)	3.0E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	1.5E-02	NC	2.5E-02 (J)	1.5E-02	ug/L	Arithmetic Mean	(e)
	4,4'-DDE	ug/L	NC	NC	1.5E-02 (J)	1.5E-02	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	1.4E-02 (J)	1.4E-02	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	NC	NC	3.7E-03 (J)	3.7E-03	ug/L	Maximum concentration	(b)
	Aluminum	ug/L	2.7E+03	1.7E+04 (NP)	2.1E+04	1.7E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	3.6E+00	1.1E+01 (NP)	1.8E+01	1.1E+01	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Cadmium	ug/L	2.7E+00	1.6E+01 (NP)	2.0E+01	1.6E+01	ug/L	97.5% KM (Chebyshev) UCL	(b)
	Chromium	ug/L	4.4E+01	2.2E+02 (NP)	2.6E+02	2.2E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Cobalt	ug/L	2.8E+00	9.2E+00 (NP)	9.2E+00 (J)	9.2E+00	ug/L	95% KM (BCA) UCL	
	Copper	ug/L	NC	NC	4.3E+02	4.3E+02	ug/L	Maximum concentration	(b)
	Cyanide	ug/L	NC	NC	1.1E+01 (J)	1.1E+01	ug/L	Maximum concentration	(b)
	Iron	ug/L	9.7E+03	4.5E+04 (NP)	5.5E+04 (J)	4.5E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	5.7E+01	2.7E+02 (NP)	3.3E+02	2.7E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Manganese	ug/L	2.2E+02	7.5E+02 (NP)	1.2E+03 (J)	7.5E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	3.9E-01	3.7E-01 (NP)	4.6E-01 (J)	3.7E-01	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	8.3E+00	4.9E+01 (NP)	6.0E+01	4.9E+01	ug/L	97.5% KM (Chebyshev) UCL	

TABLE 3.14.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 1,4-dichlorobenzene, benzo(g,h,i)perylene, and phenanthrene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.15.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill									
	Benzo(a)anthracene	ug/L	NC	NC	1.2E-01	1.2E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.8E-01	1.5E-01	ug/L	95% KM (t) UCL	
	Benzo(g,h,i)perylene	ug/L	5.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	1.1E-01	1.1E-01 (NP)	1.5E-01	1.1E-01	ug/L	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	5.0E-02	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	Maximum concentration	(d)
	Phenanthrene	ug/L	9.0E-02	9.8E-02 (NP)	1.4E-01	9.8E-02	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	NC	NC	2.4E+00	2.4E+00	ug/L	Maximum concentration	(b)
	Aroclor-1260	ug/L	NC	NC	1.2E-01 (J)	1.2E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	NC	NC	5.2E-03 (J)	5.2E-03	ug/L	Maximum concentration	(b)
	4,4'-DDE	ug/L	NC	NC	1.4E-03	1.4E-03	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	NC	NC	1.7E-03	1.7E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	4.9E-03	4.0E-03 (NP)	1.2E-02 (J)	4.0E-03	ug/L	95% KM (BCA) UCL	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	2.8E+02 (N)	3.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	2.4E+00	3.0E+00 (NP)	4.1E+00	3.0E+00	ug/L	95% Student's-t UCL	
	Cadmium	ug/L	4.6E-01	5.6E-01 (G)	7.4E-01	5.6E-01	ug/L	95% KM (BCA) UCL	
	Chromium	ug/L	2.7E+00	3.3E+00 (N)	5.0E+00	3.3E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	7.7E-01	8.1E-01 (NP)	1.4E+00 (J)	8.1E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	8.7E+00	9.3E+00 (NP)	9.6E+00	9.3E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	3.0E+03	7.5E+03 (NP)	8.6E+03 (J)	7.5E+03	ug/L	95% KM (Chebyshev) UCL	
	Lead	ug/L	5.6E+00	6.8E+00 (N)	8.5E+00 (J)	6.8E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (NP)	4.2E+02 (J)	3.2E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	1.5E-02	1.7E-02 (NP)	1.6E-02	1.6E-02	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	1.3E+00	1.9E+00 (N)	2.7E+00 (J)	1.9E+00	ug/L	95% KM (t) UCL	

TABLE 3.15.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: benzo(g,h,i)perylene and naphthalene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.15.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill									
	Benzo(a)anthracene	ug/L	NC	NC	1.2E-01	1.2E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.8E-01	1.5E-01	ug/L	95% KM (t) UCL	
	Benzo(g,h,i)perylene	ug/L	5.0E-02	NC	1.0E-01	5.0E-02	ug/L	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	1.1E-01	1.1E-01 (NP)	1.5E-01	1.1E-01	ug/L	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	5.0E-02	1.4E-01 (NP)	1.4E-01	5.0E-02	ug/L	Arithmetic Mean	(e)
	Phenanthrene	ug/L	9.0E-02	9.8E-02 (NP)	1.4E-01	9.8E-02	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	NC	NC	2.4E+00	2.4E+00	ug/L	Maximum concentration	(b)
	Aroclor-1260	ug/L	NC	NC	1.2E-01 (J)	1.2E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	NC	NC	5.2E-03 (J)	5.2E-03	ug/L	Maximum concentration	(b)
	4,4'-DDE	ug/L	NC	NC	1.4E-03	1.4E-03	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	NC	NC	1.7E-03	1.7E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	4.9E-03	4.0E-03 (NP)	1.2E-02 (J)	4.0E-03	ug/L	95% KM (BCA) UCL	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	2.8E+02 (N)	3.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	2.4E+00	3.0E+00 (NP)	4.1E+00	3.0E+00	ug/L	95% Student's-t UCL	
	Cadmium	ug/L	4.6E-01	5.6E-01 (G)	7.4E-01	5.6E-01	ug/L	95% KM (BCA) UCL	
	Chromium	ug/L	2.7E+00	3.3E+00 (N)	5.0E+00	3.3E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	7.7E-01	8.1E-01 (NP)	1.4E+00 (J)	8.1E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	8.7E+00	9.3E+00 (NP)	9.6E+00	9.3E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	3.0E+03	7.5E+03 (NP)	8.6E+03 (J)	7.5E+03	ug/L	95% KM (Chebyshev) UCL	
	Lead	ug/L	5.6E+00	6.8E+00 (N)	8.5E+00 (J)	6.8E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (NP)	4.2E+02 (J)	3.2E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	1.5E-02	1.7E-02 (NP)	1.6E-02	1.6E-02	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	1.3E+00	1.9E+00 (N)	2.7E+00 (J)	1.9E+00	ug/L	95% KM (t) UCL	

TABLE 3.15.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: benzo(g,h,i)perylene and naphthalene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.16.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(a)pyrene	mg/kg	1.1E-01	NC	1.4E-01 (J)	1.4E-01	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	1.1E-01	1.6E-01 (N)	1.8E-01 (J)	1.6E-01	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	4.0E+00	NC	7.2E+00	7.2E+00	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	8.0E+03	NC	9.5E+03	9.5E+03	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	6.5E-01	NC	9.8E-01 (J)	9.8E-01	mg/kg	Maximum concentration	(c)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.16.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(a)pyrene	mg/kg	1.1E-01	NC	1.4E-01 (J)	1.1E-01	mg/kg	Arithmetic mean	(e)
	Benzo(b)fluoranthene	mg/kg	1.1E-01	1.6E-01 (N)	1.8E-01 (J)	1.6E-01	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	4.0E+00	NC	7.2E+00	4.0E+00	mg/kg	Arithmetic mean	(e)
	Iron	mg/kg	8.0E+03	NC	9.5E+03	8.0E+03	mg/kg	Arithmetic mean	(e)
	Thallium	mg/kg	6.5E-01	NC	9.8E-01 (J)	6.5E-01	mg/kg	Arithmetic mean	(e)

Notes:

(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect
NC = Not calculated

TABLE 3.17.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(a)anthracene	mg/kg	3.9E-01	1.1E+00 (LN)	1.8E+00	1.1E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(a)pyrene	mg/kg	5.4E-01	1.5E+00 (LN)	3.1E+00	1.5E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(b)fluoranthene	mg/kg	6.3E-01	1.7E+00 (LN)	2.8E+00 (J)	1.7E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(k)fluoranthene	mg/kg	3.9E-01	1.2E+00 (LN)	1.9E+00	1.2E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Carbazole	mg/kg	1.7E-01	1.7E-01 (NP)	4.6E-01 (J)	1.7E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	7.7E-02	2.5E-01 (NP)	6.3E-01	2.5E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.0E-01	1.0E+00 (LN)	2.5E+00	1.0E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	5.9E-02	7.5E-02 (LN)	3.6E-01 (J)	7.5E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	1.3E+04	1.7E+04 (G)	3.7E+04	1.7E+04	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	1.8E+00	1.1E+00 (N)	4.2E+00	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Arsenic	mg/kg	5.7E+00	7.6E+00 (G)	1.9E+01	7.6E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	4.0E+01	5.5E+01 (G)	1.3E+02 (J)	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.3E+01	1.3E+01 (NP)	3.3E+01	1.3E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Iron	mg/kg	2.0E+04	2.7E+04 (LN)	5.7E+04	2.7E+04	mg/kg	95% H-UCL	
	Lead	mg/kg	6.9E+01	9.6E+01 (G)	3.6E+02 (J)	See Appendix Z			
	Manganese	mg/kg	4.5E+02	6.3E+02 (G)	1.9E+03	6.3E+02	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	3.2E-01	3.7E-01 (NP)	5.2E-01	3.7E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	3.3E+01	4.0E+01 (G)	8.7E+01	4.0E+01	mg/kg	95% KM (BCA) UCL	

TABLE 3.17.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.17.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(a)anthracene	mg/kg	3.9E-01	1.1E+00 (LN)	1.8E+00	1.1E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(a)pyrene	mg/kg	5.4E-01	1.5E+00 (LN)	3.1E+00	1.5E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(b)fluoranthene	mg/kg	6.3E-01	1.7E+00 (LN)	2.8E+00 (J)	1.7E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(k)fluoranthene	mg/kg	3.9E-01	1.2E+00 (LN)	1.9E+00	1.2E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Carbazole	mg/kg	1.7E-01	1.7E-01 (NP)	4.6E-01 (J)	1.7E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	7.7E-02	2.5E-01 (NP)	6.3E-01	2.5E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.0E-01	1.0E+00 (LN)	2.5E+00	1.0E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	5.9E-02	7.5E-02 (LN)	3.6E-01 (J)	7.5E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	1.3E+04	1.7E+04 (G)	3.7E+04	1.7E+04	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	1.8E+00	1.1E+00 (N)	4.2E+00	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Arsenic	mg/kg	5.7E+00	7.6E+00 (G)	1.9E+01	7.6E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	4.0E+01	5.5E+01 (G)	1.3E+02 (J)	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.3E+01	1.3E+01 (NP)	3.3E+01	1.3E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Iron	mg/kg	2.0E+04	2.7E+04 (LN)	5.7E+04	2.7E+04	mg/kg	95% H-UCL	
	Lead	mg/kg	6.9E+01	9.6E+01 (G)	3.6E+02 (J)	See Appendix Z			
	Manganese	mg/kg	4.5E+02	6.3E+02 (G)	1.9E+03	6.3E+02	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	3.2E-01	3.7E-01 (NP)	5.2E-01	3.7E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	3.3E+01	4.0E+01 (G)	8.7E+01	4.0E+01	mg/kg	95% KM (BCA) UCL	

TABLE 3.17.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.18.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(b)fluoranthene	ug/L	NC	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	2.5E+00	NC	1.9E+00 (J)	1.9E+00	ug/L	Maximum concentration	(c)
	Chrysene	ug/L	5.4E-02	NC	1.1E-01	1.1E-01	ug/L	Maximum concentration	(c)
	beta-BHC	ug/L	6.0E-03	4.9E-03 (NP)	1.0E-02 (J)	4.9E-03	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	ug/L	95% Approx. Gamma UCL	
	Cobalt	ug/L	2.4E+00	2.0E+00 (NP)	6.7E+00 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	6.4E+01	9.2E+01 (LN)	1.8E+02	9.2E+01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Iron	ug/L	1.5E+03	1.6E+03 (N)	3.7E+03 (J)	1.6E+03	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (LN)	7.0E+02 (J)	3.2E+02	ug/L	95% Chebyshev (MVUE) UCL	

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: bis(2-ethylhexyl)phthalate and chrysene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect
NC = Not calculated

TABLE 3.18.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands									
	Benzo(b)fluoranthene	ug/L	NC	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	2.5E+00	NC	1.9E+00 (J)	1.9E+00	ug/L	Maximum concentration	(f)
	Chrysene	ug/L	5.4E-02	NC	1.1E-01	5.4E-02	ug/L	Arithmetic Mean	(e)
	beta-BHC	ug/L	6.0E-03	4.9E-03 (NP)	1.0E-02 (J)	4.9E-03	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	ug/L	95% Approx. Gamma UCL	
	Cobalt	ug/L	2.4E+00	2.0E+00 (NP)	6.7E+00 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	6.4E+01	9.2E+01 (LN)	1.8E+02	9.2E+01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Iron	ug/L	1.5E+03	1.6E+03 (N)	3.7E+03 (J)	1.6E+03	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (LN)	7.0E+02 (J)	3.2E+02	ug/L	95% Chebyshev (MVUE) UCL	

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: bis(2-ethylhexyl)phthalate and chrysene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect
NC = Not calculated

TABLE 3.19.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
OU2									
	4-Chloro-3-methylphenol	mg/kg	1.5E-01	NC	2.3E-01 (J)	2.3E-01	mg/kg	Maximum Concentration	(c)
	4-Nitrophenol	mg/kg	6.1E-01	NC	1.0E+00 (J)	1.0E+00	mg/kg	Maximum Concentration	(c)
	Benzaldehyde	mg/kg	3.3E-01	2.9E-01 (NP)	4.9E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	1.0E-02	8.6E-03 (N)	1.3E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	1.1E-02	9.0E-03 (N)	1.3E-02	9.0E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	1.3E-02	9.4E-03 (N)	1.8E-02	9.4E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E-02	1.0E-02 (N)	1.6E-02	1.0E-02	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	3.7E-01	2.9E-01 (NP)	7.1E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	5.1E-01	6.0E-01 (G)	2.0E+00	6.0E-01	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	7.0E-03	1.1E-02 (G)	2.7E-02	1.1E-02	mg/kg	95% KM (Chebyshev) UCL	
	4,4'-DDE	mg/kg	1.5E-02	1.8E-02 (G)	6.8E-02	1.8E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.8E-03	1.9E-03 (N)	9.8E-03	1.9E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	1.7E-04	NC	9.3E-04 (J)	9.3E-04	mg/kg	Maximum Concentration	(c)
	alpha-Chlordane	mg/kg	4.4E-03	6.9E-03 (G)	1.8E-02	6.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	1.1E-02	1.4E-02 (LN)	4.3E-02	1.4E-02	mg/kg	95% H-UCL	
	Endosulfan I	mg/kg	1.8E-03	1.1E-03 (NP)	4.4E-03 (J)	1.1E-03	mg/kg	95% KM (BCA) UCL	
	Endosulfan II	mg/kg	3.7E-04	3.4E-04 (NP)	4.0E-04 (J)	3.4E-04	mg/kg	95% KM (t) UCL	
	Endosulfan Sulfate	mg/kg	3.8E-03	4.6E-03 (G)	1.2E-02 (J)	4.6E-03	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	3.7E-03	3.8E-03 (G)	1.1E-02	3.8E-03	mg/kg	95% KM (BCA) UCL	
	Heptachlor	mg/kg	2.0E-04	NC	2.4E-03	2.4E-03	mg/kg	Maximum Concentration	(c)
	Heptachlor Epoxide	mg/kg	5.7E-04	4.0E-04 (N)	8.1E-04	4.0E-04	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	4.3E-02	4.0E-02 (G)	1.0E-01	4.0E-02	mg/kg	95% KM (BCA) UCL	
	Cadmium	mg/kg	2.4E-02	2.0E-02 (NP)	2.1E-01	2.0E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.2E+00	2.8E+00 (G)	1.0E+01	2.8E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	2.2E-02	3.0E-02 (NP)	8.4E-02	3.0E-02	mg/kg	95% KM (Chebyshev) UCL	
	Iron	mg/kg	2.3E+01	4.2E+01 (NP)	2.1E+02	4.2E+01	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	8.4E-02	3.0E-02 (N)	2.0E-01	3.0E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	9.3E-02	1.0E-01 (N)	1.9E-01	1.0E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.1E+00	1.4E+00 (G)	5.4E+00	1.4E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	4.4E-01	5.0E-01 (N)	6.7E-01	5.0E-01	mg/kg	95% Student's-t UCL	

TABLE 3.19.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 4-chloro-3-methylphenol, 4-nitrophenol, aldrin, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.19.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
OU2									
	4-Chloro-3-methylphenol	mg/kg	1.5E-01	NC	2.3E-01 (J)	1.5E-01	mg/kg	Arithmetic mean	(e)
	4-Nitrophenol	mg/kg	6.1E-01	NC	1.0E+00 (J)	6.1E-01	mg/kg	Arithmetic mean	(e)
	Benzaldehyde	mg/kg	3.3E-01	2.9E-01 (NP)	4.9E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	1.0E-02	8.6E-03 (N)	1.3E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	1.1E-02	9.0E-03 (N)	1.3E-02	9.0E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	1.3E-02	9.4E-03 (N)	1.8E-02	9.4E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E-02	1.0E-02 (N)	1.6E-02	1.0E-02	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	3.7E-01	2.9E-01 (NP)	7.1E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	5.1E-01	6.0E-01 (G)	2.0E+00	6.0E-01	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	7.0E-03	1.1E-02 (G)	2.7E-02	1.1E-02	mg/kg	95% KM (Chebyshev) UCL	
	4,4'-DDE	mg/kg	1.5E-02	1.8E-02 (G)	6.8E-02	1.8E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.8E-03	1.9E-03 (N)	9.8E-03	1.9E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	1.7E-04	NC	9.3E-04 (J)	1.7E-04	mg/kg	Arithmetic mean	(e)
	alpha-Chlordane	mg/kg	4.4E-03	6.9E-03 (G)	1.8E-02	6.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	1.1E-02	1.4E-02 (LN)	4.3E-02	1.4E-02	mg/kg	95% H-UCL	
	Endosulfan I	mg/kg	1.8E-03	1.1E-03 (NP)	4.4E-03 (J)	1.1E-03	mg/kg	95% KM (BCA) UCL	
	Endosulfan II	mg/kg	3.7E-04	3.4E-04 (NP)	4.0E-04 (J)	3.4E-04	mg/kg	95% KM (t) UCL	
	Endosulfan Sulfate	mg/kg	3.8E-03	4.6E-03 (G)	1.2E-02 (J)	4.6E-03	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	3.7E-03	3.8E-03 (G)	1.1E-02	3.8E-03	mg/kg	95% KM (BCA) UCL	
	Heptachlor	mg/kg	2.0E-04	NC	2.4E-03	2.0E-04	mg/kg	Arithmetic mean	(e)
	Heptachlor Epoxide	mg/kg	5.7E-04	4.0E-04 (N)	8.1E-04	4.0E-04	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	4.3E-02	4.0E-02 (G)	1.0E-01	4.0E-02	mg/kg	95% KM (BCA) UCL	
	Cadmium	mg/kg	2.4E-02	2.0E-02 (NP)	2.1E-01	2.0E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.2E+00	2.8E+00 (G)	1.0E+01	2.8E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	2.2E-02	3.0E-02 (NP)	8.4E-02	3.0E-02	mg/kg	95% KM (Chebyshev) UCL	
	Iron	mg/kg	2.3E+01	4.2E+01 (NP)	2.1E+02	4.2E+01	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	8.4E-02	3.0E-02 (N)	2.0E-01	3.0E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	9.3E-02	1.0E-01 (N)	1.9E-01	1.0E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.1E+00	1.4E+00 (G)	5.4E+00	1.4E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	4.4E-01	5.0E-01 (N)	6.7E-01	5.0E-01	mg/kg	95% Student's-t UCL	

TABLE 3.19.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 4-chloro-3-methylphenol, 4-nitrophenol, aldrin, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.20.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-1									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.1E-01	1.1E-01 (NP)	1.7E-01 (J)	1.1E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E-01	1.5E-01 (N)	2.3E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	9.8E-03	9.8E-03 (NP)	9.8E-03	9.8E-03	mg/kg	99% KM (Chebyshev) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	1.4E-01	1.4E-01 (NP)	2.2E-01	1.4E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	2.9E-01	4.6E-01 (LN)	1.3E+00	4.6E-01	mg/kg	95% H-UCL	
	4,4'-DDD	mg/kg	4.2E-03	5.7E-03 (G)	1.3E-02	5.7E-03	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	1.2E-02	1.9E-02 (LN)	5.6E-02	1.9E-02	mg/kg	95% H-UCL	
	4,4'-DDT	mg/kg	2.9E-03	8.7E-03 (LN)	1.5E-02	8.7E-03	mg/kg	97.5% KM (Chebyshev) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	3.2E-03	4.8E-03 (G)	9.4E-03	4.8E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	8.4E-03	9.7E-03 (N)	1.6E-02	9.7E-03	mg/kg	95% Student's-t UCL	
	Endosulfan I	mg/kg	3.3E-03	3.2E-03 (NP)	4.8E-03 (J)	3.2E-03	mg/kg	95% KM (t) UCL	
	Endosulfan II	mg/kg	1.8E-04	NC	5.1E-04 (J)	5.1E-04	mg/kg	Maximum Concentration	(c)
	Endosulfan Sulfate	mg/kg	1.7E-03	3.0E-03 (NP)	4.8E-03 (J)	3.0E-03	mg/kg	95% KM (Chebyshev) UCL	
	Gamma-Chlordane	mg/kg	3.6E-03	3.5E-03 (N)	5.6E-03	3.5E-03	mg/kg	95% KM (t) UCL	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	9.9E-04	1.9E-03 (NP)	2.9E-03	1.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Arsenic	mg/kg	7.3E-02	8.5E-02 (N)	1.3E-01	8.5E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	2.3E-02	2.4E-02 (N)	4.1E-02	2.4E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	1.9E+00	2.4E+00 (G)	5.4E+00	2.4E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	1.7E-02	1.5E-02 (N)	2.5E-02	1.5E-02	mg/kg	95% KM (t) UCL	
	Iron	mg/kg	1.7E+01	2.0E+01 (N)	3.0E+01	2.0E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	2.7E-02	2.5E-02 (NP)	2.9E-02	2.5E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	1.1E-01	1.3E-01 (N)	2.2E-01	1.3E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	8.9E-01	1.2E+00 (G)	2.8E+00	1.2E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	5.8E-01	6.5E-01 (G)	1.1E+00	6.5E-01	mg/kg	95% Approximate Gamma UCL	

TABLE 3.20.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for Endosulfan II where the mean was calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA. NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.20.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-1									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.1E-01	1.1E-01 (NP)	1.7E-01 (J)	1.1E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E-01	1.5E-01 (N)	2.3E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	9.8E-03	9.8E-03 (NP)	9.8E-03	9.8E-03	mg/kg	99% KM (Chebyshev) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	1.4E-01	1.4E-01 (NP)	2.2E-01	1.4E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	2.9E-01	4.6E-01 (LN)	1.3E+00	4.6E-01	mg/kg	95% H-UCL	
	4,4'-DDD	mg/kg	4.2E-03	5.7E-03 (G)	1.3E-02	5.7E-03	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	1.2E-02	1.9E-02 (LN)	5.6E-02	1.9E-02	mg/kg	95% H-UCL	
	4,4'-DDT	mg/kg	2.9E-03	8.7E-03 (LN)	1.5E-02	8.7E-03	mg/kg	97.5% KM (Chebyshev) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	3.2E-03	4.8E-03 (G)	9.4E-03	4.8E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	8.4E-03	9.7E-03 (N)	1.6E-02	9.7E-03	mg/kg	95% Student's-t UCL	
	Endosulfan I	mg/kg	3.3E-03	3.2E-03 (NP)	4.8E-03 (J)	3.2E-03	mg/kg	95% KM (t) UCL	
	Endosulfan II	mg/kg	1.8E-04	NC	5.1E-04 (J)	1.8E-04	mg/kg	Arithmetic mean	(e)
	Endosulfan Sulfate	mg/kg	1.7E-03	3.0E-03 (NP)	4.8E-03 (J)	3.0E-03	mg/kg	95% KM (Chebyshev) UCL	
	Gamma-Chlordane	mg/kg	3.6E-03	3.5E-03 (N)	5.6E-03	3.5E-03	mg/kg	95% KM (t) UCL	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	9.9E-04	1.9E-03 (NP)	2.9E-03	1.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Arsenic	mg/kg	7.3E-02	8.5E-02 (N)	1.3E-01	8.5E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	2.3E-02	2.4E-02 (N)	4.1E-02	2.4E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	1.9E+00	2.4E+00 (G)	5.4E+00	2.4E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	1.7E-02	1.5E-02 (N)	2.5E-02	1.5E-02	mg/kg	95% KM (t) UCL	
	Iron	mg/kg	1.7E+01	2.0E+01 (N)	3.0E+01	2.0E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	2.7E-02	2.5E-02 (NP)	2.9E-02	2.5E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	1.1E-01	1.3E-01 (N)	2.2E-01	1.3E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	8.9E-01	1.2E+00 (G)	2.8E+00	1.2E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	5.8E-01	6.5E-01 (G)	1.1E+00	6.5E-01	mg/kg	95% Approximate Gamma UCL	

TABLE 3.20.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for Endosulfan II where the mean was calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.21.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-2									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)anthracene	mg/kg	2.9E-02	2.9E-02 (NP)	2.9E-02	2.9E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.8E-02	2.8E-02 (NP)	2.8E-02	2.8E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E-02	9.3E-03 (NP)	1.4E-02	9.3E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.4E-01	2.6E-01 (G)	4.7E-01	2.6E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	8.8E-03	8.1E-03 (NP)	1.0E-02	8.1E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	4.0E-03	NC	7.9E-03	7.9E-03	mg/kg	Maximum Concentration	(c)
	Indeno(1,2,3-cd)pyrene	mg/kg	1.2E-02	1.2E-02 (NP)	1.2E-02	1.2E-02	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	3.4E-01	3.3E-01 (NP)	5.2E-01	3.3E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	7.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	8.9E-03	1.2E-02 (G)	2.2E-02	1.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	3.2E-02	4.2E-02 (G)	8.5E-02	4.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.1E-03	3.0E-03 (G)	8.6E-03	3.0E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	5.4E-03	6.9E-03 (G)	1.2E-02	6.9E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	1.4E-02	1.6E-02 (G)	2.2E-02	1.6E-02	mg/kg	95% Approximate Gamma UCL	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	1.7E-04	NC	3.8E-04 (J)	3.8E-04	mg/kg	Maximum concentration	(c)
	Endosulfan Sulfate	mg/kg	7.5E-03	1.0E-02 (G)	1.8E-02 (J)	1.0E-02	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	4.8E-03	5.8E-03 (G)	9.2E-03	5.8E-03	mg/kg	95% Approximate Gamma UCL	
	Heptachlor	mg/kg	2.1E-04	NC	1.0E-03 (J)	1.0E-03	mg/kg	Maximum concentration	(c)
	Heptachlor Epoxide	mg/kg	4.5E-04	4.6E-04 (G)	7.0E-04	4.6E-04	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	6.3E-02	6.9E-02 (N)	1.0E-01	6.9E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	1.4E-02	1.3E-02 (N)	2.4E-02	1.3E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.3E+00	2.7E+00 (N)	3.9E+00	2.7E+00	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	1.8E-02	1.9E-02 (N)	2.3E-02	1.9E-02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.7E+01	1.9E+01 (N)	2.2E+01	1.9E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.0E-02	1.0E-02 (NP)	1.0E-02	1.0E-02	mg/kg	99% KM (Chebyshev) UCL	
	Mercury	mg/kg	9.5E-02	1.1E-01 (N)	1.5E-01	1.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.3E+00	1.5E+00 (N)	2.2E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	5.3E-01	5.8E-01 (N)	7.3E-01	5.8E-01	mg/kg	95% Student's-t UCL	

TABLE 3.21.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: hexachlorobenzene, endosulfan II, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.21.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-2									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)anthracene	mg/kg	2.9E-02	2.9E-02 (NP)	2.9E-02	2.9E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.8E-02	2.8E-02 (NP)	2.8E-02	2.8E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E-02	9.3E-03 (NP)	1.4E-02	9.3E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.4E-01	2.6E-01 (G)	4.7E-01	2.6E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	8.8E-03	8.1E-03 (NP)	1.0E-02	8.1E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	4.0E-03	NC	7.9E-03	4.0E-03	mg/kg	Arithmetic mean	(e)
	Indeno(1,2,3-cd)pyrene	mg/kg	1.2E-02	1.2E-02 (NP)	1.2E-02	1.2E-02	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	3.4E-01	3.3E-01 (NP)	5.2E-01	3.3E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	7.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	8.9E-03	1.2E-02 (G)	2.2E-02	1.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	3.2E-02	4.2E-02 (G)	8.5E-02	4.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.1E-03	3.0E-03 (G)	8.6E-03	3.0E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	5.4E-03	6.9E-03 (G)	1.2E-02	6.9E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	1.4E-02	1.6E-02 (G)	2.2E-02	1.6E-02	mg/kg	95% Approximate Gamma UCL	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	1.7E-04	NC	3.8E-04 (J)	1.7E-04	mg/kg	Arithmetic mean	(e)
	Endosulfan Sulfate	mg/kg	7.5E-03	1.0E-02 (G)	1.8E-02 (J)	1.0E-02	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	4.8E-03	5.8E-03 (G)	9.2E-03	5.8E-03	mg/kg	95% Approximate Gamma UCL	
	Heptachlor	mg/kg	2.1E-04	NC	1.0E-03 (J)	2.1E-04	mg/kg	Arithmetic mean	(e)
	Heptachlor Epoxide	mg/kg	4.5E-04	4.6E-04 (G)	7.0E-04	4.6E-04	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	6.3E-02	6.9E-02 (N)	1.0E-01	6.9E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	1.4E-02	1.3E-02 (N)	2.4E-02	1.3E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.3E+00	2.7E+00 (N)	3.9E+00	2.7E+00	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	1.8E-02	1.9E-02 (N)	2.3E-02	1.9E-02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.7E+01	1.9E+01 (N)	2.2E+01	1.9E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.0E-02	1.0E-02 (NP)	1.0E-02	1.0E-02	mg/kg	99% KM (Chebyshev) UCL	
	Mercury	mg/kg	9.5E-02	1.1E-01 (N)	1.5E-01	1.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.3E+00	1.5E+00 (N)	2.2E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	5.3E-01	5.8E-01 (N)	7.3E-01	5.8E-01	mg/kg	95% Student's-t UCL	

TABLE 3.21.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: hexachlorobenzene, endosulfan II, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.22.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
P-6									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.5E-01	1.6E-01 (NP)	2.0E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Benzo(a)anthracene	mg/kg	7.6E-03	7.3E-03 (NP)	1.0E-02	7.3E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	7.8E-03	7.6E-03 (NP)	9.3E-03	7.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.3E-03	7.9E-03 (NP)	1.1E-02	7.9E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	8.9E-03	8.6E-03 (NP)	1.1E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	6.4E-03	6.3E-03 (NP)	7.4E-03	6.3E-03	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.8E-03	8.5E-03 (NP)	1.1E-02	8.5E-03	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Total PCB Homologs	mg/kg	3.6E-02	8.3E-02 (NP)	1.1E-01	8.3E-02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	4,4'-DDD	mg/kg	5.7E-04	6.3E-04 (N)	8.2E-04	6.3E-04	mg/kg	95% KM (t) UCL	
	4,4'-DDE	mg/kg	2.8E-03	3.2E-03 (N)	3.6E-03	3.2E-03	mg/kg	95% Student's-t UCL	
	4,4'-DDT	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dieldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan Sulfate	mg/kg	8.1E-04	1.1E-03 (NP)	1.1E-03 (J)	1.1E-03	mg/kg	95% KM (% Bootstrap) UCL	
	Gamma-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Cadmium	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Chromium	mg/kg	4.8E-01	5.2E-01 (N)	5.6E-01	5.2E-01	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	6.6E-03	6.6E-03 (NP)	6.6E-03	6.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Iron	mg/kg	6.4E+00	8.5E+00 (G)	1.3E+01	8.5E+00	mg/kg	95% Approximate Gamma UCL	
	Lead	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Mercury	mg/kg	4.1E-01	5.1E-01 (N)	7.4E-01	5.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	2.1E-01	2.2E-01 (N)	2.4E-01	2.2E-01	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	2.0E-01	2.4E-01 (N)	3.0E-01	2.4E-01	mg/kg	95% Student's-t UCL	

TABLE 3.22.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.22.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
P-6									
	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.5E-01	1.6E-01 (NP)	2.0E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Benzo(a)anthracene	mg/kg	7.6E-03	7.3E-03 (NP)	1.0E-02	7.3E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	7.8E-03	7.6E-03 (NP)	9.3E-03	7.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.3E-03	7.9E-03 (NP)	1.1E-02	7.9E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	8.9E-03	8.6E-03 (NP)	1.1E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	6.4E-03	6.3E-03 (NP)	7.4E-03	6.3E-03	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.8E-03	8.5E-03 (NP)	1.1E-02	8.5E-03	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Total PCB Homologs	mg/kg	3.6E-02	8.3E-02 (NP)	1.1E-01	8.3E-02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	4,4'-DDD	mg/kg	5.7E-04	6.3E-04 (N)	8.2E-04	6.3E-04	mg/kg	95% KM (t) UCL	
	4,4'-DDE	mg/kg	2.8E-03	3.2E-03 (N)	3.6E-03	3.2E-03	mg/kg	95% Student's-t UCL	
	4,4'-DDT	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dieldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan Sulfate	mg/kg	8.1E-04	1.1E-03 (NP)	1.1E-03 (J)	1.1E-03	mg/kg	95% KM (% Bootstrap) UCL	
	Gamma-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Cadmium	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Chromium	mg/kg	4.8E-01	5.2E-01 (N)	5.6E-01	5.2E-01	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	6.6E-03	6.6E-03 (NP)	6.6E-03	6.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Iron	mg/kg	6.4E+00	8.5E+00 (G)	1.3E+01	8.5E+00	mg/kg	95% Approximate Gamma UCL	
	Lead	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Mercury	mg/kg	4.1E-01	5.1E-01 (N)	7.4E-01	5.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	2.1E-01	2.2E-01 (N)	2.4E-01	2.2E-01	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	2.0E-01	2.4E-01 (N)	3.0E-01	2.4E-01	mg/kg	95% Student's-t UCL	

TABLE 3.22.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.23.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide									
	1,4-Dioxane	ug/L	4.8E+00	NC	5.5E+01	5.5E+01	ug/L	Maximum concentration	
	2,4-Dimethylphenol	ug/L	2.1E+00	NC	8.0E+00 (J)	8.0E+00	ug/L	Maximum concentration	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum concentration	
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum concentration	
	Benzo(a)anthracene	ug/L	4.3E-02	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	
	Benzo(a)pyrene	ug/L	3.9E-02	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	
	Benzo(b)fluoranthene	ug/L	4.2E-02	NC	3.8E-01	3.8E-01	ug/L	Maximum concentration	
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	
	bis(2-Ethylhexyl)phthalate	ug/L	2.4E+00	NC	5.0E+01	5.0E+01	ug/L	Maximum concentration	
	Carbazole	ug/L	2.8E-01	NC	4.8E-01 (J)	4.8E-01	ug/L	Maximum concentration	
	Dibenzofuran	ug/L	1.8E+00	NC	2.8E+00 (J)	2.8E+00	ug/L	Maximum concentration	
	Indeno(1,2,3-cd)pyrene	ug/L	3.8E-02	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	
	Naphthalene	ug/L	2.2E-01	NC	1.4E+01	1.4E+01	ug/L	Maximum concentration	
	Phenanthrene	ug/L	1.2E-01	NC	5.9E+00	5.9E+00	ug/L	Maximum concentration	
	1,2,4-Trichlorobenzene	ug/L	2.7E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum concentration	
	1,2-Dichlorobenzene	ug/L	4.0E-01	NC	4.4E+00 (J)	4.4E+00	ug/L	Maximum concentration	
	1,3-Dichlorobenzene	ug/L	2.8E-01	NC	6.9E-01	6.9E-01	ug/L	Maximum concentration	
	1,4-Dichlorobenzene	ug/L	9.2E-01	NC	8.4E+00	8.4E+00	ug/L	Maximum concentration	
	2-Butanone	ug/L	1.8E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum concentration	
	Benzene	ug/L	2.2E+01	NC	1.1E+03	1.1E+03	ug/L	Maximum concentration	
	Bromodichloromethane	ug/L	2.7E-01	NC	3.2E-01 (J)	3.2E-01	ug/L	Maximum concentration	
	Chlorobenzene	ug/L	5.6E+00	NC	9.3E+01	9.3E+01	ug/L	Maximum concentration	
	Chloroethane	ug/L	4.0E-01	NC	2.1E+00 (J)	2.1E+00	ug/L	Maximum concentration	
	Chloroform	ug/L	4.7E-01	NC	3.9E+00	3.9E+00	ug/L	Maximum concentration	
	Ethylbenzene	ug/L	4.4E-01	NC	1.7E+01	1.7E+01	ug/L	Maximum concentration	
	Isopropylbenzene	ug/L	3.6E+00	NC	1.6E+02	1.6E+02	ug/L	Maximum concentration	
	Methyl tert-butyl ether	ug/L	5.4E-01	NC	2.1E+01	2.1E+01	ug/L	Maximum concentration	
	Tetrachloroethene	ug/L	3.0E-01	NC	2.5E+00	2.5E+00	ug/L	Maximum concentration	
	Toluene	ug/L	3.4E-01	NC	4.9E+00 (J)	4.9E+00	ug/L	Maximum concentration	
	Trichloroethene	ug/L	3.3E-01	NC	4.1E+00	4.1E+00	ug/L	Maximum concentration	
	Vinyl Chloride	ug/L	2.9E-01	NC	1.2E+00	1.2E+00	ug/L	Maximum concentration	
	Xylene (Total)	ug/L	2.0E+00	NC	5.1E+01	5.1E+01	ug/L	Maximum concentration	

TABLE 3.23.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	5.2E-02	NC	3.3E-01 (J)	3.3E-01	ug/L	Maximum concentration	
	Aroclor-1248	ug/L	5.1E-02	NC	1.8E-01 (J)	1.8E-01	ug/L	Maximum concentration	
	Aroclor-1254	ug/L	5.4E-02	NC	5.8E-01	5.8E-01	ug/L	Maximum concentration	
	4,4'-DDD	ug/L	2.7E-03	NC	6.7E-03 (J)	6.7E-03	ug/L	Maximum concentration	
	4,4'-DDE	ug/L	2.7E-03	NC	5.6E-03 (J)	5.6E-03	ug/L	Maximum concentration	
	4,4'-DDT	ug/L	2.6E-03	NC	3.8E-03 (J)	3.8E-03	ug/L	Maximum concentration	
	Aldrin	ug/L	1.8E-03	NC	6.0E-03 (J)	6.0E-03	ug/L	Maximum concentration	
	alpha-BHC	ug/L	1.8E-03	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	
	Dieldrin	ug/L	2.7E-03	NC	8.3E-03 (J)	8.3E-03	ug/L	Maximum concentration	
	Endosulfan Sulfate	ug/L	2.7E-03	NC	8.2E-03 (J)	8.2E-03	ug/L	Maximum concentration	
	Gamma-BHC (Lindane)	ug/L	1.9E-03	NC	1.6E-02 (J)	1.6E-02	ug/L	Maximum concentration	
	Heptachlor	ug/L	1.8E-03	NC	4.6E-03 (J)	4.6E-03	ug/L	Maximum concentration	
	Aluminum	ug/L	2.7E+02	NC	1.3E+04	1.3E+04	ug/L	Maximum concentration	
	Arsenic	ug/L	1.5E+01	NC	1.2E+02	1.2E+02	ug/L	Maximum concentration	
	Cadmium	ug/L	1.1E+00	NC	2.7E+01	2.7E+01	ug/L	Maximum concentration	
	Chromium	ug/L	1.4E+00	NC	1.3E+01	1.3E+01	ug/L	Maximum concentration	
	Cobalt	ug/L	1.7E+01	NC	3.3E+01	3.3E+01	ug/L	Maximum concentration	
	Iron	ug/L	1.5E+04	NC	7.7E+04	7.7E+04	ug/L	Maximum concentration	
	Lead	ug/L	2.2E+00	NC	7.9E+01	7.9E+01	ug/L	Maximum concentration	
	Manganese	ug/L	6.7E+02	NC	5.8E+03	5.8E+03	ug/L	Maximum concentration	
	Nickel	ug/L	1.5E+01	NC	7.8E+01	7.8E+01	ug/L	Maximum concentration	
	Silver	ug/L	3.0E+00	NC	1.4E+01 (J)	1.4E+01	ug/L	Maximum concentration	
	Thallium	ug/L	1.4E+00	NC	8.9E+00 (J)	8.9E+00	ug/L	Maximum concentration	
	Zinc	ug/L	8.9E+01	NC	4.1E+03	4.1E+03	ug/L	Maximum concentration	

Notes:
(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
(2) UCL calculations were not performed as the maximum or mean concentrations were used as EPCs.
NA = Not applicable.
(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
(4) Maximum concentrations were used as EPCs as RME EPCs and arithmetic means were used as CT EPCs, unless otherwise noted.
(5)
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.
NC = Not calculated

TABLE 3.23.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide									
	1,4-Dioxane	ug/L	4.8E+00	NC	5.5E+01	4.8E+00	ug/L	Arithmetic mean	(e)
	2,4-Dimethylphenol	ug/L	2.1E+00	NC	8.0E+00 (J)	2.1E+00	ug/L	Arithmetic mean	(e)
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(f)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum concentration	(f)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum concentration	(f)
	Benzo(a)anthracene	ug/L	4.3E-02	NC	3.6E-01	4.3E-02	ug/L	Arithmetic mean	(e)
	Benzo(a)pyrene	ug/L	3.9E-02	NC	2.6E-01	3.9E-02	ug/L	Arithmetic mean	(e)
	Benzo(b)fluoranthene	ug/L	4.2E-02	NC	3.8E-01	4.2E-02	ug/L	Arithmetic mean	(e)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	(f)
	bis(2-Ethylhexyl)phthalate	ug/L	2.4E+00	NC	5.0E+01	2.4E+00	ug/L	Arithmetic mean	(e)
	Carbazole	ug/L	2.8E-01	NC	4.8E-01 (J)	2.8E-01	ug/L	Arithmetic mean	(e)
	Dibenzofuran	ug/L	1.8E+00	NC	2.8E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Indeno(1,2,3-cd)pyrene	ug/L	3.8E-02	NC	1.4E-01	3.8E-02	ug/L	Arithmetic mean	(e)
	Naphthalene	ug/L	2.2E-01	NC	1.4E+01	2.2E-01	ug/L	Arithmetic mean	(e)
	Phenanthrene	ug/L	1.2E-01	NC	5.9E+00	1.2E-01	ug/L	Arithmetic mean	(e)
	1,2,4-Trichlorobenzene	ug/L	2.7E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum concentration	(f)
	1,2-Dichlorobenzene	ug/L	4.0E-01	NC	4.4E+00 (J)	4.0E-01	ug/L	Arithmetic mean	(e)
	1,3-Dichlorobenzene	ug/L	2.8E-01	NC	6.9E-01	2.8E-01	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	9.2E-01	NC	8.4E+00	9.2E-01	ug/L	Arithmetic mean	(e)
	2-Butanone	ug/L	1.8E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum concentration	(f)
	Benzene	ug/L	2.2E+01	NC	1.1E+03	2.2E+01	ug/L	Arithmetic mean	(e)
	Bromodichloromethane	ug/L	2.7E-01	NC	3.2E-01 (J)	2.7E-01	ug/L	Arithmetic mean	(e)
	Chlorobenzene	ug/L	5.6E+00	NC	9.3E+01	5.6E+00	ug/L	Arithmetic mean	(e)
	Chloroethane	ug/L	4.0E-01	NC	2.1E+00 (J)	4.0E-01	ug/L	Arithmetic mean	(e)
	Chloroform	ug/L	4.7E-01	NC	3.9E+00	4.7E-01	ug/L	Arithmetic mean	(e)
	Ethylbenzene	ug/L	4.4E-01	NC	1.7E+01	4.4E-01	ug/L	Arithmetic mean	(e)
	Isopropylbenzene	ug/L	3.6E+00	NC	1.6E+02	3.6E+00	ug/L	Arithmetic mean	(e)
	Methyl tert-butyl ether	ug/L	5.4E-01	NC	2.1E+01	5.4E-01	ug/L	Arithmetic mean	(e)
	Tetrachloroethene	ug/L	3.0E-01	NC	2.5E+00	3.0E-01	ug/L	Arithmetic mean	(e)
	Toluene	ug/L	3.4E-01	NC	4.9E+00 (J)	3.4E-01	ug/L	Arithmetic mean	(e)
	Trichloroethene	ug/L	3.3E-01	NC	4.1E+00	3.3E-01	ug/L	Arithmetic mean	(e)
	Vinyl Chloride	ug/L	2.9E-01	NC	1.2E+00	2.9E-01	ug/L	Arithmetic mean	(e)
	Xylene (Total)	ug/L	2.0E+00	NC	5.1E+01	2.0E+00	ug/L	Arithmetic mean	(e)

TABLE 3.23.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	5.2E-02	NC	3.3E-01 (J)	5.2E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1248	ug/L	5.1E-02	NC	1.8E-01 (J)	5.1E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1254	ug/L	5.4E-02	NC	5.8E-01	5.4E-02	ug/L	Arithmetic mean	(e)
	4,4'-DDD	ug/L	2.7E-03	NC	6.7E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	2.7E-03	NC	5.6E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDT	ug/L	2.6E-03	NC	3.8E-03 (J)	2.6E-03	ug/L	Arithmetic mean	(e)
	Aldrin	ug/L	1.8E-03	NC	6.0E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	alpha-BHC	ug/L	1.8E-03	NC	3.5E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Dieldrin	ug/L	2.7E-03	NC	8.3E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Endosulfan Sulfate	ug/L	2.7E-03	NC	8.2E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Gamma-BHC (Lindane)	ug/L	1.9E-03	NC	1.6E-02 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Heptachlor	ug/L	1.8E-03	NC	4.6E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	2.7E+02	NC	1.3E+04	2.7E+02	ug/L	Arithmetic mean	(e)
	Arsenic	ug/L	1.5E+01	NC	1.2E+02	1.5E+01	ug/L	Arithmetic mean	(e)
	Cadmium	ug/L	1.1E+00	NC	2.7E+01	1.1E+00	ug/L	Arithmetic mean	(e)
	Chromium	ug/L	1.4E+00	NC	1.3E+01	1.4E+00	ug/L	Arithmetic mean	(e)
	Cobalt	ug/L	1.7E+01	NC	3.3E+01	1.7E+01	ug/L	Arithmetic mean	(e)
	Iron	ug/L	1.5E+04	NC	7.7E+04	1.5E+04	ug/L	Arithmetic mean	(e)
	Lead	ug/L	2.2E+00	NC	7.9E+01	2.2E+00	ug/L	Arithmetic mean	(e)
	Manganese	ug/L	6.7E+02	NC	5.8E+03	6.7E+02	ug/L	Arithmetic mean	(e)
	Nickel	ug/L	1.5E+01	NC	7.8E+01	1.5E+01	ug/L	Arithmetic mean	(e)
	Silver	ug/L	3.0E+00	NC	1.4E+01 (J)	3.0E+00	ug/L	Arithmetic mean	(e)
	Thallium	ug/L	1.4E+00	NC	8.9E+00 (J)	1.4E+00	ug/L	Arithmetic mean	(e)
	Zinc	ug/L	8.9E+01	NC	4.1E+03	8.9E+01	ug/L	Arithmetic mean	(e)

Notes:
(1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
(2) UCL calculations were not performed as the maximum or mean concentrations were used as EPCs.
NA = Not applicable.
(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
(4) Maximum concentrations were used as EPCs as RME EPCs and arithmetic means were used as CT EPCs, unless otherwise noted.
(5)
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.
NC = Not calculated

TABLE 3.24.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide									
	1,4-Dioxane	ug/L	1.3E+01	7.0E+00 (G)	5.3E+01	7.0E+00	ug/L	95% KM (t) UCL	(a)
	2,4-Dimethylphenol	ug/L	4.1E+00	3.0E+00 (NP)	8.0E+00 (J)	3.0E+00	ug/L	99% KM (Chebyshev) UCL	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum Concentration	(c)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum Concentration	(c)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum Concentration	(c)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum Concentration	(c)
	Benzo(a)anthracene	ug/L	9.6E-02	3.1E-02 (G)	3.6E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	1.9E-01	1.2E-01 (NP)	2.6E-01	1.2E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(b)fluoranthene	ug/L	1.7E-01	2.8E-02 (N)	3.8E-01	2.8E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum Concentration	(c)
	bis(2-Ethylhexyl)phthalate	ug/L	4.1E+00	4.4E+00 (NP)	5.0E+01	4.4E+00	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Carbazole	ug/L	2.9E-01	NC	4.8E-01 (J)	4.8E-01	ug/L	Maximum Concentration	(c)
	Dibenzofuran	ug/L	3.7E-01	4.2E-01 (NP)	4.2E-01 (J)	4.2E-01	ug/L	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	1.4E-01	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Naphthalene	ug/L	1.2E+00	8.5E-01 (LN)	1.4E+01	8.5E-01	ug/L	95% KM (Chebyshev) UCL	(a)
	Phenanthrene	ug/L	7.5E-01	2.0E-01 (G)	5.9E+00	2.0E-01	ug/L	95% KM (t) UCL	(a)
	1,2,4-Trichlorobenzene	ug/L	2.9E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum Concentration	(c)
	1,2-Dichlorobenzene	ug/L	1.0E+00	7.6E-01 (NP)	4.4E+00 (J)	7.6E-01	ug/L	95% KM (t) UCL	
	1,3-Dichlorobenzene	ug/L	3.0E-01	NC	6.9E-01 (J)	6.9E-01	ug/L	Maximum Concentration	(c)
	1,4-Dichlorobenzene	ug/L	1.9E+00	9.3E-01 (G)	8.4E+00	9.3E-01	ug/L	95% KM (BCA) UCL	(a)
	2-Butanone	ug/L	1.9E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum Concentration	(c)
	Benzene	ug/L	9.8E+01	1.0E+02 (NP)	1.1E+03	1.0E+02	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Bromodichloromethane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chlorobenzene	ug/L	1.4E+01	5.5E+00 (G)	9.3E+01	5.5E+00	ug/L	95% KM (t) UCL	(a)
	Chloroethane	ug/L	4.7E-01	NC	2.1E+00 (J)	2.1E+00	ug/L	Maximum Concentration	(c)
	Chloroform	ug/L	1.5E+00	6.4E-01 (N)	3.9E+00	6.4E-01	ug/L	95% KM (t) UCL	(a)
	Ethylbenzene	ug/L	4.0E+00	1.3E+00 (NP)	1.7E+01	1.3E+00	ug/L	95% KM (t) UCL	
	Isopropylbenzene	ug/L	1.7E+01	9.6E+00 (LN)	1.6E+02	9.6E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Methyl tert-butyl ether	ug/L	2.7E+00	1.6E+00 (NP)	2.1E+01	1.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Tetrachloroethene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Toluene	ug/L	1.5E+00	5.8E-01 (NP)	4.9E+00 (J)	5.8E-01	ug/L	95% KM (t) UCL	
	Trichloroethene	ug/L	8.8E-01	5.9E-01 (NP)	1.2E+00	5.9E-01	ug/L	95% KM (t) UCL	
	Vinyl Chloride	ug/L	8.8E-01	6.3E-01 (NP)	1.2E+00	6.3E-01	ug/L	95% KM (t) UCL	
	Xylene (Total)	ug/L	9.7E+00	2.0E+00 (G)	5.1E+01	2.0E+00	ug/L	95% KM (t) UCL	(a)

TABLE 3.24.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	3.3E-01	3.3E-01 (NP)	3.3E-01 (J)	3.3E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Aroclor-1248	ug/L	5.3E-02	NC	1.8E-01 (J)	1.8E-01	ug/L	Maximum Concentration	(c)
	Aroclor-1254	ug/L	5.8E-01	5.8E-01 (NP)	5.8E-01	5.8E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	4,4'-DDD	ug/L	2.7E-03	NC	5.0E-03 (J)	5.0E-03	ug/L	Maximum Concentration	(c)
	4,4'-DDE	ug/L	4.7E-03	3.9E-03 (NP)	5.6E-03 (J)	3.9E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	2.7E-03	NC	3.8E-03 (J)	3.8E-03	ug/L	Maximum Concentration	(c)
	Aldrin	ug/L	1.9E-03	NC	6.0E-03 (J)	6.0E-03	ug/L	Maximum Concentration	(c)
	alpha-BHC	ug/L	1.9E-03	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum Concentration	(c)
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Endosulfan Sulfate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-BHC (Lindane)	ug/L	1.2E-02	8.5E-03 (NP)	1.6E-02 (J)	8.5E-03	ug/L	95% KM (t) UCL	
	Heptachlor	ug/L	1.9E-03	NC	4.6E-03 (J)	4.6E-03	ug/L	Maximum Concentration	(c)
	Aluminum	ug/L	5.5E+02	1.3E+03 (LN)	1.3E+04	1.3E+03	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.5E+01	2.9E+01 (LN)	1.2E+02	2.9E+01	ug/L	97.5% KM (Chebyshev) UCL	
	Cadmium	ug/L	2.5E+00	2.2E+00 (NP)	2.7E+01	2.2E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Chromium	ug/L	3.0E+00	1.7E+00 (NP)	1.3E+01	1.7E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	4.6E+00	7.6E+00 (NP)	3.3E+01	7.6E+00	ug/L	95% KM (BCA) UCL	
	Iron	ug/L	1.7E+04	2.4E+04 (NP)	7.7E+04	2.4E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	3.3E+00	3.3E+00 (NP)	7.9E+01	3.3E+00	ug/L	95% KM (BCA) UCL	
	Manganese	ug/L	7.4E+02	1.0E+03 (G)	5.8E+03	1.0E+03	ug/L	95% KM (Chebyshev) UCL	
	Nickel	ug/L	1.8E+01	8.8E+00 (G)	7.8E+01	8.8E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	7.3E+00	2.0E+00 (NP)	1.4E+01 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Thallium	ug/L	3.4E+00	2.6E+00 (NP)	8.5E+00 (J)	2.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Zinc	ug/L	4.1E+02	2.7E+02 (LN)	4.1E+03	2.7E+02	ug/L	95% KM (Chebyshev) UCL	(a)

TABLE 3.24.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future

Medium: Groundwater

Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 2-chlorophenol, 4-chloroaniline, atrazine, benzaldehyde, benzo(g,h,i)perylene, carbazole, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, 2-butanone, chloroethane, aroclor-1248, 4,4'-DDD, 4,4'-DDT, aldrin, alpha-BHC, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.24.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide									
	1,4-Dioxane	ug/L	1.3E+01	7.0E+00 (G)	5.3E+01	7.0E+00	ug/L	95% KM (t) UCL	(a)
	2,4-Dimethylphenol	ug/L	4.1E+00	3.0E+00 (NP)	8.0E+00 (J)	3.0E+00	ug/L	99% KM (Chebyshev) UCL	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum Concentration	(f)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum Concentration	(f)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum Concentration	(f)
	Benzo(a)anthracene	ug/L	9.6E-02	3.1E-02 (G)	3.6E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	1.9E-01	1.2E-01 (NP)	2.6E-01	1.2E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(b)fluoranthene	ug/L	1.7E-01	2.8E-02 (N)	3.8E-01	2.8E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum Concentration	(f)
	bis(2-Ethylhexyl)phthalate	ug/L	4.1E+00	4.4E+00 (NP)	5.0E+01	4.4E+00	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Carbazole	ug/L	2.9E-01	NC	4.8E-01 (J)	2.9E-01	ug/L	Arithmetic mean	(e)
	Dibenzofuran	ug/L	3.7E-01	4.2E-01 (NP)	4.2E-01 (J)	4.2E-01	ug/L	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	1.4E-01	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Naphthalene	ug/L	1.2E+00	8.5E-01 (LN)	1.4E+01	8.5E-01	ug/L	95% KM (Chebyshev) UCL	(a)
	Phenanthrene	ug/L	7.5E-01	2.0E-01 (G)	5.9E+00	2.0E-01	ug/L	95% KM (t) UCL	(a)
	1,2,4-Trichlorobenzene	ug/L	2.9E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum Concentration	(f)
	1,2-Dichlorobenzene	ug/L	1.0E+00	7.6E-01 (NP)	4.4E+00 (J)	7.6E-01	ug/L	95% KM (t) UCL	
	1,3-Dichlorobenzene	ug/L	3.0E-01	NC	6.9E-01 (J)	3.0E-01	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	1.9E+00	9.3E-01 (G)	8.4E+00	9.3E-01	ug/L	95% KM (BCA) UCL	(a)
	2-Butanone	ug/L	1.9E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum Concentration	(f)
	Benzene	ug/L	9.8E+01	1.0E+02 (NP)	1.1E+03	1.0E+02	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Bromodichloromethane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chlorobenzene	ug/L	1.4E+01	5.5E+00 (G)	9.3E+01	5.5E+00	ug/L	95% KM (t) UCL	(a)
	Chloroethane	ug/L	4.7E-01	NC	2.1E+00 (J)	4.7E-01	ug/L	Arithmetic mean	(e)
	Chloroform	ug/L	1.5E+00	6.4E-01 (N)	3.9E+00	6.4E-01	ug/L	95% KM (t) UCL	(a)
	Ethylbenzene	ug/L	4.0E+00	1.3E+00 (NP)	1.7E+01	1.3E+00	ug/L	95% KM (t) UCL	
	Isopropylbenzene	ug/L	1.7E+01	9.6E+00 (LN)	1.6E+02	9.6E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Methyl tert-butyl ether	ug/L	2.7E+00	1.6E+00 (NP)	2.1E+01	1.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Tetrachloroethene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Toluene	ug/L	1.5E+00	5.8E-01 (NP)	4.9E+00 (J)	5.8E-01	ug/L	95% KM (t) UCL	
	Trichloroethene	ug/L	8.8E-01	5.9E-01 (NP)	1.2E+00	5.9E-01	ug/L	95% KM (t) UCL	
	Vinyl Chloride	ug/L	8.8E-01	6.3E-01 (NP)	1.2E+00	6.3E-01	ug/L	95% KM (t) UCL	
	Xylene (Total)	ug/L	9.7E+00	2.0E+00 (G)	5.1E+01	2.0E+00	ug/L	95% KM (t) UCL	(a)

TABLE 3.24.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	3.3E-01	3.3E-01 (NP)	3.3E-01 (J)	3.3E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Aroclor-1248	ug/L	5.3E-02	NC	1.8E-01 (J)	5.3E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1254	ug/L	5.8E-01	5.8E-01 (NP)	5.8E-01	5.8E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	4,4'-DDD	ug/L	2.7E-03	NC	5.0E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	4.7E-03	3.9E-03 (NP)	5.6E-03 (J)	3.9E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	2.7E-03	NC	3.8E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Aldrin	ug/L	1.9E-03	NC	6.0E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	alpha-BHC	ug/L	1.9E-03	NC	3.5E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Endosulfan Sulfate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-BHC (Lindane)	ug/L	1.2E-02	8.5E-03 (NP)	1.6E-02 (J)	8.5E-03	ug/L	95% KM (t) UCL	
	Heptachlor	ug/L	1.9E-03	NC	4.6E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	5.5E+02	1.3E+03 (LN)	1.3E+04	1.3E+03	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.5E+01	2.9E+01 (LN)	1.2E+02	2.9E+01	ug/L	97.5% KM (Chebyshev) UCL	
	Cadmium	ug/L	2.5E+00	2.2E+00 (NP)	2.7E+01	2.2E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Chromium	ug/L	3.0E+00	1.7E+00 (NP)	1.3E+01	1.7E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	4.6E+00	7.6E+00 (NP)	3.3E+01	7.6E+00	ug/L	95% KM (BCA) UCL	
	Iron	ug/L	1.7E+04	2.4E+04 (NP)	7.7E+04	2.4E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	3.3E+00	3.3E+00 (NP)	7.9E+01	3.3E+00	ug/L	95% KM (BCA) UCL	
	Manganese	ug/L	7.4E+02	1.0E+03 (G)	5.8E+03	1.0E+03	ug/L	95% KM (Chebyshev) UCL	
	Nickel	ug/L	1.8E+01	8.8E+00 (G)	7.8E+01	8.8E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	7.3E+00	2.0E+00 (NP)	1.4E+01 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Thallium	ug/L	3.4E+00	2.6E+00 (NP)	8.5E+00 (J)	2.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Zinc	ug/L	4.1E+02	2.7E+02 (LN)	4.1E+03	2.7E+02	ug/L	95% KM (Chebyshev) UCL	(a)

TABLE 3.24.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future

Medium: Groundwater

Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

(1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 2-chlorophenol, 4-chloroaniline, atrazine, benzaldehyde, benzo(g,h,i)perylene, carbazole, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, 2-butanone, chloroethane, aroclor-1248, 4,4'-DDD, 4,4'-DDT, aldrin, alpha-BHC, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.

(2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.

(3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

(4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.

(5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
(a) UCL may not be reliable due to the high frequency of non-detects present.
(b) Maximum detected concentration used for EPC due to the low number of detections.
(c) Due to small sample size, the maximum detected concentration is used.
(d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
(e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
(f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.25.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Soil/Groundwater

Exposure Medium: Ambient Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration (1)			
						Value	Units	Statistic	Rationale
Landfill									
	1,1-Dichloroethane	ug/m3	NA	NA	NA	4.2E-03	ug/m3	SCREEN3 model	
	1,2,4-Trimethylbenzene	ug/m3	NA	NA	NA	5.4E-02	ug/m3	SCREEN3 model	
	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m3	NA	NA	NA	7.2E-02	ug/m3	SCREEN3 model	
	1,2-Dichlorobenzene	ug/m3	NA	NA	NA	5.2E-02	ug/m3	SCREEN3 model	
	1,3,5-Trimethylbenzene	ug/m3	NA	NA	NA	9.9E-03	ug/m3	SCREEN3 model	
	1,3-Dichlorobenzene	ug/m3	NA	NA	NA	1.0E-01	ug/m3	SCREEN3 model	
	1,4-Dichlorobenzene	ug/m3	NA	NA	NA	2.9E-01	ug/m3	SCREEN3 model	
	4-Ethyltoluene	ug/m3	NA	NA	NA	4.9E-02	ug/m3	SCREEN3 model	
	Benzene	ug/m3	NA	NA	NA	7.2E-01	ug/m3	SCREEN3 model	
	Carbon tetrachloride	ug/m3	NA	NA	NA	2.1E-03	ug/m3	SCREEN3 model	
	Chlorobenzene	ug/m3	NA	NA	NA	1.7E+00	ug/m3	SCREEN3 model	
	cis-1,2-Dichloroethene	ug/m3	NA	NA	NA	8.8E-03	ug/m3	SCREEN3 model	
	Dichlorodifluoromethane	ug/m3	NA	NA	NA	1.8E-02	ug/m3	SCREEN3 model	
	Ethylbenzene	ug/m3	NA	NA	NA	5.5E-01	ug/m3	SCREEN3 model	
	Methylene chloride	ug/m3	NA	NA	NA	4.1E-03	ug/m3	SCREEN3 model	
	trans-1,2-Dichloroethene	ug/m3	NA	NA	NA	9.9E-03	ug/m3	SCREEN3 model	
	Trichloroethene	ug/m3	NA	NA	NA	2.3E-02	ug/m3	SCREEN3 model	
	Vinyl Chloride	ug/m3	NA	NA	NA	8.8E-02	ug/m3	SCREEN3 model	
	Xylene (Total)	ug/m3	NA	NA	NA	3.1E-01	ug/m3	SCREEN3 model	

Notes:

(1) The exposure point concentrations were estimated using the USEPA SCREEN3 air dispersion model and the air vent data from the landfill (Appendix X).

NA = Not applicable.

TABLE 3.25.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration (1)			
						Value	Units	Statistic	Rationale
Landfill									
	1,1-Dichloroethane	ug/m3	NA	NA	NA	2.9E-03	ug/m3	SCREEN3 model	
	1,2,4-Trimethylbenzene	ug/m3	NA	NA	NA	3.8E-02	ug/m3	SCREEN3 model	
	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m3	NA	NA	NA	5.0E-02	ug/m3	SCREEN3 model	
	1,2-Dichlorobenzene	ug/m3	NA	NA	NA	3.6E-02	ug/m3	SCREEN3 model	
	1,3,5-Trimethylbenzene	ug/m3	NA	NA	NA	7.0E-03	ug/m3	SCREEN3 model	
	1,3-Dichlorobenzene	ug/m3	NA	NA	NA	7.3E-02	ug/m3	SCREEN3 model	
	1,4-Dichlorobenzene	ug/m3	NA	NA	NA	2.0E-01	ug/m3	SCREEN3 model	
	4-Ethyltoluene	ug/m3	NA	NA	NA	3.4E-02	ug/m3	SCREEN3 model	
	Benzene	ug/m3	NA	NA	NA	5.0E-01	ug/m3	SCREEN3 model	
	Carbon tetrachloride	ug/m3	NA	NA	NA	1.5E-03	ug/m3	SCREEN3 model	
	Chlorobenzene	ug/m3	NA	NA	NA	1.2E+00	ug/m3	SCREEN3 model	
	cis-1,2-Dichloroethene	ug/m3	NA	NA	NA	6.2E-03	ug/m3	SCREEN3 model	
	Dichlorodifluoromethane	ug/m3	NA	NA	NA	1.2E-02	ug/m3	SCREEN3 model	
	Ethylbenzene	ug/m3	NA	NA	NA	3.9E-01	ug/m3	SCREEN3 model	
	Methylene chloride	ug/m3	NA	NA	NA	2.9E-03	ug/m3	SCREEN3 model	
	trans-1,2-Dichloroethene	ug/m3	NA	NA	NA	7.0E-03	ug/m3	SCREEN3 model	
	Trichloroethene	ug/m3	NA	NA	NA	1.6E-02	ug/m3	SCREEN3 model	
	Vinyl Chloride	ug/m3	NA	NA	NA	6.2E-02	ug/m3	SCREEN3 model	
	Xylene (Total)	ug/m3	NA	NA	NA	2.2E-01	ug/m3	SCREEN3 model	

Notes:
(1) The exposure point concentrations were estimated using the USEPA SCREEN3 air dispersion model and the air vent data from the landfill (Appendix X).
NA = Not applicable.

TABLE 3.26.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	3.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	7.6E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	8.4E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	3.9E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	7.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.7E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	5.6E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	5.0E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	1.9E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.2E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	6.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).

TABLE 3.26.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	3.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	7.6E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	8.4E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	3.9E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	7.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.7E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	5.6E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	5.0E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	1.9E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.2E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	6.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).

TABLE 3.27.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Benzene	ug/L	NA	1.2E+01	NA	2.5E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:
(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).
NA = Not applicable

TABLE 3.27.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Benzene	ug/L	NA	1.2E+01	NA	2.5E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:
(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).
NA = Not applicable

TABLE 3.28.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	6.2E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	4.7E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	1.1E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	4.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	1.0E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	4.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.6E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	6.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	4.7E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	2.3E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.4E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	7.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.28.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	6.2E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	4.7E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	1.1E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	4.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	1.0E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	4.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.6E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	6.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	4.7E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	2.3E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.4E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	7.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.29.RME

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	Naphthalene	ug/L	NA	1.1E+01	NA	6.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	ug/L	NA	1.7E+00	NA	5.9E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	ug/L	NA	1.2E+01	NA	1.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Chloroform	ug/L	NA	1.2E+00	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	ug/L	NA	NA	1.7E+01	2.3E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Vinyl chloride	ug/L	NA	NA	8.5E-01 (a)	7.8E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.29.CT

EXPOSURE POINT CONCENTRATION SUMMARY

CENTRAL TENDENCY EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel									
	Naphthalene	ug/L	NA	1.1E+01	NA	6.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	ug/L	NA	1.7E+00	NA	5.9E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	ug/L	NA	1.2E+01	NA	1.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Chloroform	ug/L	NA	1.2E+00	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	ug/L	1.2E+00	NA	NA	1.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Vinyl chloride	ug/L	NA	NA	8.5E-01 (a)	7.8E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	CS x IR x EF x ED x CF x FI
			(2) Landfill	IR	Ingestion Rate	100	mg/day	USEPA, 2002	BW x AT
			(3) Quinnville wellfield	EF	Exposure Frequency	104	days/yr	Professional Judgement	
			(4) Wetlands	ED	Exposure Duration	10	years	USEPA, 1989	
			(5) Nunes Parcel	CF	Conversion Factor	1.00E-06	kg/mg		
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	CS x SA x AF x ABS x EF x ED x CF
			(2) Landfill	SA	Surface Area	5,900	cm^2	USEPA, 1997	BW x AT
			(3) Quinnville wellfield	AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
			(4) Wetlands	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Nunes Parcel	EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	5,700	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 2002	BW x AT
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	4,400	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	CS x SA x AF x ABS x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2002	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

Adherence factor for adolescent soil exposure represents the geometric mean for adult gardeners.

Adolescent surface area assumes head, forearms, hands, lower legs, and feet.

Adult recreational user surface area assumes head, forearms, hands, and lower legs.

Older child surface area assumes head, forearms, hands, lower legs, and feet.

Adult commercial worker surface area assumes head, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

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USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	CS x IR x EF x ED x CF x FI
			(2) Landfill	IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	BW x AT
			(3) Quinnville wellfield	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Wetlands	ED	Exposure Duration	10	years	USEPA, 1989	
			(5) Nunes Parcel	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	CS x SA x AF x ABS x EF x ED x CF
			(2) Landfill	SA	Surface Area	5,900	cm^2	USEPA, 2004	BW x AT
			(3) Quinnville wellfield	AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
			(4) Wetlands	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Nunes Parcel	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	5,700	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	4,400	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	50	mg/day	USEPA, 2002	BW x AT
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	CS x SA x AF x ABS x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	

Adherence factor for adolescent soil exposure represents that for teens in moist soil conditions.

Adolescent surface area assumes head, forearms, hands, lower legs, and feet.

Adult recreational user surface area assumes head, forearms, hands, and lower legs.

Older child surface area assumes head, forearms, hands, lower legs, and feet.

Adult commercial worker surface area assumes head, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil/Groundwater
Exposure Medium:	Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	104	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	10	years	USEPA, 1989	
				ET	Exposure Time	1	hours/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Inhalation	Site Worker	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m^3	See Table 3.25	CA x ET x EF x ED
				ET	Exposure Time	8	hrs/day	Professional judgement	AT x CF
				EF	Exposure Frequency	150	days/yr	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

Exposure time for site worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.2.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil/Groundwater
Exposure Medium:	Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	10	years	USEPA, 1989	
				ET	Exposure Time	1	hour/day	Professional Judgement	
				CF	Conversion factor	24	hour/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Inhalation	Site Worker	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m^3	See Table 3.25	CA x ET x EF x ED
				ET	Exposure Time	8	hrs/day	Professional judgement	AT x CF
				EF	Exposure Frequency	150	days/yr	Professional Judgement	
				ED	Exposure Duration	9	years	USEPA, 2004	
				CF	Conversion factor	24	hour/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	

Exposure time for site worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Trespasser	Adolescent	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	3,700	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	$\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	10	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	$\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface area assumes lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.3.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Trespasser	Adolescent	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	3,700	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	$\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	10	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	$\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface area assumes lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Trespasser	Adolescent	(1) Upstream of landfill	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.18	Organics:
			(2) Adjacent to landfill	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill	SA	Surface Area	7,600	cm^2	USEPA, 1997	
			(4) and Wetlands	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	10	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal - wading	Recreational User	Adult	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	7,310	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	24	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	4,170	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED
				ET	Event Time	1	hrs/event	USEPA, 2004	BW x AT
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	BW x AT
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface areas for wading exposures assume hands, feet, forearms, and lower legs.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.4.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Trespasser	Adolescent	(1) Upstream of landfill	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.18	Organics:
			(2) Adjacent to landfill	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill	SA	Surface Area	7,600	cm^2	USEPA, 1997	
			(4) and Wetlands	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	10	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal-wading	Recreational User	Adult	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	7,310	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	20	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.4.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Recreational User	Older child	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	4,170	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface areas for wading exposures assume hands, feet, forearms, and lower legs.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill	IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	BW x AT
			(3) Downstream of landfill	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Wetlands	ED	Exposure Duration	10	years	Professional Judgement	
			(5) and Southern Bank	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill	SA	Surface Area	7,600	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Wetlands	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) and Southern Bank	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	BW x AT
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	7,310	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	BW x AT
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	4,170	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

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USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill	IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	BW x AT
			(3) Downstream of landfill	EF	Exposure Frequency	26	days/yr	Professional Judgement	
			(4) Wetlands	ED	Exposure Duration	10	years	Professional Judgement	
			(5) and Southern Bank	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal - wading	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill	SA	Surface Area	7,600	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Wetlands	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) and Southern Bank	EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	BW x AT
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	7,310	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	BW x AT
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	4,170	cm^2	USEPA, 1997	BW x AT
				AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

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TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current/Future
Medium:	Fish Tissue (Fillet)
Exposure Medium:	Fish Tissue (Fillet)

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	CF x IR x EF x ED x FI / BW x AT
				IR	Ingestion Rate	0.014	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Young Child	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	CF x IR x EF x ED x FI / BW x AT
				IR	Ingestion Rate	0.0061	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Ebert, E.S. and N.W. Harrington. 1993. Estimating Consumption of Freshwater Fish among Marine Anglers. North American Journal of Fisheries Management 13:737-745.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

TABLE 4.6.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRA TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current/Future
Medium:	Fish Tissue (Fillet)
Exposure Medium:	Fish Tissue (Fillet)

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	CF x IR x EF x ED x FI
				IR	Ingestion Rate	0.0089	kg/day	Ebert and Harrington, 1993	BW x AT
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	7	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Ingestion	Recreational User	Young Child	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	CF x IR x EF x ED x FI
				IR	Ingestion Rate	0.0037	kg/day	Ebert and Harrington, 1993	BW x AT
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	2	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	

Ebert, E.S. and N.W. Harrington. 1993. Estimating Consumption of Freshwater Fish among Marine Anglers. North American Journal of Fisheries Management 13:737-745.

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TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	CW x IR x EF x ED x CF
				IR	Ingestion Rate	2	liters/day	USEPA, 1989	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Inhalation	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m^3) =
				K	Volatilization Factor	0.5	L/m^3	USEPA, 1991	CA x K x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	AT
				ED	Exposure Duration	24	years	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
Dermal	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	18,000	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED
				ET	Event Time	0.58	hour/event	USEPA, 2004	BW x AT
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	24	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	BW x AT
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion	Resident	Young child	On-site Monitoriing Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	CW x IR x EF x ED x CF
				IR	Ingestion Rate	1.5	liters/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m^3) =
				K	Volatilization Factor	0.5	L/m^3	USEPA, 1991	CA x K x EF x ED / AT
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	6,600	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion	Construction Worker	Adult	Shallow Monitoring Well	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	CW x CR x EF x ED x CF / BW x AT
				CR	Contact Rate	0.05	liters/day	USEPA, 1989	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Worker	Adult	Shallow Monitoring Well	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	2,100	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	$\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$
				ET	Event Time	0.2	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	125	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	1	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	$\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

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TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	On-stie Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	CW x IR x EF x ED x CF
				IR	Ingestion Rate	1.4	liters/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	7	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Inhalation	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m^3) =
				K	Volatilization Factor	0.5	L/m^3	USEPA, 1991	CA x K x EF x ED / AT
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	7	years	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
Dermal	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	18,000	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	0.25	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	7	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2555	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion	Resident	Young child	On-site Monitoriing Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	CW x IR x EF x ED x CF
				IR	Ingestion Rate	0.87	liters/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	2	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m^3) =
				K	Volatilization Factor	0.5	L/m^3	USEPA, 1991	CA x K x EF x ED / AT
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	2	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	6,600	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	0.33	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	2	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion	Construction Worker	Adult	Shallow Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	CW x CR x EF x ED x CF / BW x AT
				CR	Contact Rate	0.05	liters/day	USEPA, 1989	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Worker	Adult	Shallow Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	2,100	cm^2	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	0.2	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	62	days/yr	USEPA, 2004	Inorganics:
				ED	Exposure Duration	1	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

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TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x IR x EF x ED x CF x FI
			(2) Southern Bank;	IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
			(3) Nunes Parcel;	EF	Exposure Frequency	104	days/yr	Professional Judgement	
			(4) Quinnville Wellfield;	ED	Exposure Duration	24	years	USEPA, 1989	
			(5) Wetlands;	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
			(6) Debris Fields	CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x SA x AF x ABS x EF x ED x CF
			(2) Southern Bank;	SA	Surface Area	5,700	cm^2	USEPA, 1997	BW x AT
			(3) Nunes Parcel;	AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
			(4) Quinnville Wellfield;	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands;	EF	Exposure Frequency	104	days/yr	Professional Judgement	
			(6) Debris Fields	ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Older child	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x IR x EF x ED x CF x FI
			(2) Southern Bank;	IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
			(3) Nunes Parcel;	EF	Exposure Frequency	104	days/yr	Professional Judgement	
			(4) Quinnville Wellfield;	ED	Exposure Duration	6	years	USEPA, 1989	
			(5) Wetlands;	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
			(6) Debris Fields	CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Older child	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x SA x AF x ABS x EF x ED x CF
			(2) Southern Bank;	SA	Surface Area	4,400	cm^2	USEPA, 2004	BW x AT
			(3) Nunes Parcel;	AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
			(4) Quinnville Wellfield;	Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands;	EF	Exposure Frequency	104	days/yr	Professional Judgement	
			(6) Debris Fields	ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	CS x SA x AF x ABS x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	24	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	5,700	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	24	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	200	mg/day	USEPA, 1997; 2002	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	2,800	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	330	mg/day	USEPA, 2002	BW x AT
			(3) Southern Bank (Lincoln side)	EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	CS x SA x AF x ABS x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
			(3) Southern Bank (Lincoln side)	AF	Adherence Factor	0.3	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation of fugitive dust	Construction Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	Chronic Daily Intake (CDI) (ug/m^3) =
			(2) Quinnville wellfield	ET	Exposure Time	8	hrs/day	Professional judgement	CS x ET x EF x ED x CF2
			(3) Southern Bank	EF	Exposure Frequency	125	days/yr	Professional Judgement	PEF x AT x CF1
				ED	Exposure Duration	1	years	Professional Judgement	
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	USEPA, 2002	
				CF1	Conversion Factor 1	24	hrs/day	- -	
				CF2	Conversion Factor 2	1000	ug/mg	- -	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

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TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x IR x EF x ED x CF x FI
			(2) Southern Bank;	IR	Ingestion Rate	50	mg/day	USEPA, 1997	BW x AT
			(3) Nunes Parcel;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Quinnville Wellfield;	ED	Exposure Duration	20	years	Professional Judgement	
			(5) Wetlands;	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
			(6) Debris Fields	CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal	Recreational User	Adult	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x SA x AF x ABS x EF x ED x CF
			(2) Southern Bank;	SA	Surface Area	5,700	cm^2	USEPA, 2004	BW x AT
			(3) Nunes Parcel;	AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
			(4) Quinnville Wellfield;	Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(6) Debris Fields	ED	Exposure Duration	20	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion	Recreational User	Older child	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x IR x EF x ED x CF x FI
			(2) Southern Bank;	IR	Ingestion Rate	50	mg/day	USEPA, 1997	BW x AT
			(3) Nunes Parcel;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Quinnville Wellfield;	ED	Exposure Duration	6	years	Professional Judgement	
			(5) Wetlands;	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
			(6) Debris Fields	CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Older child	(1) Landfill;	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	CS x SA x AF x ABS x EF x ED x CF
			(2) Southern Bank;	SA	Surface Area	4,400	cm^2	USEPA, 2004	BW x AT
			(3) Nunes Parcel;	AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
			(4) Quinnville Wellfield;	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(6) Debris Fields	ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	50	mg/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	CS x SA x AF x ABS x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	50	mg/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	7	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	5,700	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.07	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	7	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Ingestion	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x IR x EF x ED x CF x FI
				IR	Ingestion Rate	100	mg/day	USEPA, 1997	BW x AT
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	CS x SA x AF x ABS x EF x ED x CF
				SA	Surface Area	2,800	cm^2	USEPA, 2004	BW x AT
				AF	Adherence Factor	0.20	mg/cm^2-day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	CS x IR x EF x ED x CF x FI
			(2) Quinnville Wellfield	IR	Ingestion Rate	330	mg/day	USEPA, 2002	BW x AT
			(3) Southern Bank (Lincoln side)	EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	CS x SA x AF x Abs x EF x ED x CF
			(2) Quinnville Wellfield	SA	Surface Area	3,300	cm^2	USEPA, 2004	BW x AT
			(3) Southern Bank (Lincoln side)	AF	Adherence Factor	0.3	mg/cm^2-day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation of fugitive dust	Construction Worker	Adult	(1) Nunes Parcel;	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	Chronic Daily Intake (CDI) (ug/m^3) =
			(2) Quinnville wellfield;	ET	Exposure Time	8	hrs/day	Professional judgement	CS x ET x EF x ED x CF2
			(3) Southern Bank	EF	Exposure Frequency	62	days/yr	Professional Judgement	PEF x AT x CF1
				ED	Exposure Duration	1	years	Professional Judgement	
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	USEPA, 2002	
				CF1	Conversion Factor 1	24	hrs/day	- -	
				CF2	Conversion Factor 2	1000	ug/mg	- -	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Ambient/Outdoor (Trench) Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	(1) Nunes Parcel;	CA	Chemical Concentration in Trench Air	See Tables 3.26; 3.27	ug/m^3	See Tables 3.26; 3.27	CA x ET x EF x ED
			(2) Quinnville wellfield	ET	Exposure Time	8	hrs/day	Professional judgement	AT x CF
			(3) Southern Bank (Lincoln side)	EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation	Recreational User	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	104	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	24	years	USEPA, 1989	
				ET	Exposure Time	1	hrs/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Inhalation	Recreational User	Older Child	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	64	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	6	years	USEPA, 1989	
				ET	Exposure Time	1	hrs/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

TABLE 4.9.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Ambient/Outdoor (Trench) Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	(1) Nunes Parcel;	CA	Chemical Concentration in Trench Air	See Tables 3.26; 3.27	ug/m^3	See Tables 3.26; 3.27	CA x ET x EF x ED
			(2) Quinnville wellfield	ET	Exposure Time	8	hrs/day	Professional judgement	AT x CF
			(3) Southern Bank (Lincoln side)	EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation	Recreational User	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	20	years	USEPA, 1989	
				ET	Exposure Time	1	hr/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Inhalation	Recreational User	Older Child	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m^3	See Table 3.25	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/yr	Professional Judgement	AT x CF
				ED	Exposure Duration	6	years	USEPA, 1989	
				ET	Exposure Time	1	hr/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

TABLE 4.10.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Worker	Adult	(1) Nunes Parcel;	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
			(2) Quinnville wellfield	ET	Exposure Time	8	hours/day		$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	250	days/year	USEPA, 2002	
				ED	Exposure duration	25	years	USEPA, 2002	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 2002	
				ATnc	Averaging time for noncarcinogens	9,125	days	USEPA, 2002	
	Resident	Adult	Nunes Parcel	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
				ET	Exposure Time	24	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	24	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	8,760	days	USEPA, 1989	
		Young Child	Nunes Parcel	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
				ET	Exposure Time	24	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	6	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,190	days	USEPA, 1989	

Indoor air concentration will be modeled with Johnson & Ettinger Model.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.10.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Worker	Adult	(1) Nunes Parcel;	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
			(2) Quinnville wellfield	ET	Exposure Time	8	hours/day		$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	219	days/year	USEPA, 2002	
				ED	Exposure duration	9	years	USEPA, 2002	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 2002	
				ATnc	Averaging time for noncarcinogens	3,285	days	USEPA, 2002	
	Resident	Adult	Nunes Parcel	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
				ET	Exposure Time	16	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	7	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,555	days	USEPA, 1989	
		Young Child	Nunes Parcel	$CA_{building}$	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m^3	See Tables 3.28; 3.29	
				ET	Exposure Time	16	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	6	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,190	days	USEPA, 1989	

Indoor air concentration will be modeled with Johnson & Ettinger Model.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.11.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	4,500	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	24	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal - wading	Recreational User	Older child	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	2,700	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface areas assume lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.11.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Recreational User	Adult	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	4,500	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	20	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal-wading	Recreational User	Older child	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics:
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area	2,700	cm^2	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface areas assume lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	7,310	cm^2	USEPA, 1997	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
			(5) Wetlands	ET	Event Time	1	hour/event	Professional Judgement	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	24	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal-swimming	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	18,000	cm^2	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	24	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion-swimming	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	CW x CR x ET x EF x ED x CF1
			(2) Adjacent to landfill;	CR	Contact Rate	0.05	L/hr	USEPA, 1989	BW x AT
			(3) Downstream of landfill;	ET	Exposure Time	1.0	hr/day	Professional Judgement	
			(4) Southern Bank (Lincoln side)	EF	Exposure Frequency	32	days/yr	Professional Judgement	
			(5) Wetlands	ED	Exposure Duration	24	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	- -	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal-wading	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	4,170	cm^2	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	BW x AT
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	BW x AT
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal- swimming	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	11,000	cm^2	USEPA, 1997	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion - swimming	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	CW x CR x ET x EF x ED x CF1 / BW x AT
			(2) Adjacent to landfill;	CR	Contact Rate	0.05	L/hr	USEPA, 1989	
			(3) Downstream of landfill;	ET	Exposure Time	1.0	hr/day	USEPA, 1989	
			(4) Southern Bank (Lincoln side)	EF	Exposure Frequency	32	days/yr	Professional Judgement	
			(5) Wetlands	ED	Exposure Duration	6	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	- -	
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas for wading exposures assume hands, forearms, lower legs, and feet.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	7,310	cm^2	USEPA, 1997	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
			(5) Wetlands	ET	Event Time	1	hour/event	Professional Judgement	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	20	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Dermal-swimming	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	18,000	cm^2	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED / BW x AT
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	20	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2 / BW x AT
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion-swimming	Recreational User	Adult	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	CW x CR x ET x EF x ED x CF1
			(2) Adjacent to landfill;	CR	Contact Rate	0.05	L/hr	USEPA, 1989	BW x AT
			(3) Downstream of landfill;	ET	Exposure Time	1.0	hr/day	Professional Judgement	
			(4) Southern Bank (Lincoln side)	EF	Exposure Frequency	16	days/yr	Professional Judgement	
			(5) Wetlands	ED	Exposure Duration	20	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	- -	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal-wading	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	4,170	cm^2	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	DA x SA x EV x EF x ED
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	BW x AT
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	CW x SA x PC x ET x EV x EF x ED x CF1 x CF2
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	BW x AT
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal- swimming	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics:
			(2) Adjacent to landfill;	DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm^2-event	USEPA, 2004	Chronic Daily Intake (CDI) (mg/kg-day) =
			(3) Downstream of landfill;	SA	Surface Area	11,000	cm^2	USEPA, 1997	
			(4) Southern Bank (Lincoln side)	PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	$\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$
			(5) Wetlands	ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	Inorganics:
				ED	Exposure Duration	6	years	USEPA, 1989	CDI (mg/kg-day) =
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	$\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm^3	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion - swimming	Recreational User	Older child	(1) Upstream of landfill;	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	$\frac{CW \times CR \times ET \times EF \times ED \times CF1}{BW \times AT}$
			(2) Adjacent to landfill;	CR	Contact Rate	0.05	L/hr	USEPA, 1989	
			(3) Downstream of landfill;	ET	Exposure Time	1.0	hr/day	USEPA, 1989	
			(4) Southern Bank (Lincoln side)	EF	Exposure Frequency	16	days/yr	Professional Judgement	
			(5) Wetlands	ED	Exposure Duration	6	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	- -	
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas for wading exposures assume hands, forearms, lower legs, and feet.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.13.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Recreational User	Adult	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill;	IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	BW x AT
			(3) Downstream of landfill;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Southern Bank (Lincoln side)	ED	Exposure Duration	24	years	USEPA, 1989	
			(5) Wetlands	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill;	SA	Surface Area	7,310	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill;	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion - wading	Recreational User	Older child	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill;	IR	Ingestion Rate	100	mg/day	USEPA,1989; 1997; 2002	BW x AT
			(3) Downstream of landfill;	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Southern Bank (Lincoln side)	ED	Exposure Duration	6	years	USEPA, 1989	
			(5) Wetlands	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.13.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill;	SA	Surface Area	4,170	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill;	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.13.CTE
VALUES FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Recreational User	Adult	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill;	IR	Ingestion Rate	50	mg/day	USEPA, 1989; 1997; 2002	BW x AT
			(3) Downstream of landfill;	EF	Exposure Frequency	26	days/yr	Professional Judgement	
			(4) Southern Bank (Lincoln side)	ED	Exposure Duration	20	years	USEPA, 1989	
			(5) Wetlands	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill;	SA	Surface Area	7,310	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill;	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands	EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion - wading	Recreational User	Older child	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x IR x EF x ED x CF x FI
			(2) Adjacent to landfill;	IR	Ingestion Rate	50	mg/day	USEPA, 1989; 1997; 2002	BW x AT
			(3) Downstream of landfill;	EF	Exposure Frequency	26	days/yr	Professional Judgement	
			(4) Southern Bank (Lincoln side)	ED	Exposure Duration	6	years	Professional Judgement	
			(5) Wetlands	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.13.CTE
VALUES FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	CS x SA x AF x ABS x EF x ED x CF
			(2) Adjacent to landfill;	SA	Surface Area	4,170	cm^2	USEPA, 1997	BW x AT
			(3) Downstream of landfill;	AF	Adherence Factor	0.30	mg/cm^2-day	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands	EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,2,4-Trichlorobenzene	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Endocrine	1000	IRIS	01/15/09
1,2-Dichlorobenzene	Chronic	9E-02	mg/kg-day	(4)	9E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
1,3-Dichlorobenzene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine	100	ATSDR	01/15/09
1,4-Dichlorobenzene	Chronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver	100	ATSDR	01/15/09
2-Butanone	Chronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Developmental	1000	IRIS	01/15/09
Benzene	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Immune System	300	IRIS	01/15/09
Bromodichloromethane	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Kidney	1000	IRIS	01/15/09
Chlorobenzene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09
Chloroethane	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	CNS/Liver	3000	PPRTV	01/15/09
Chloroform	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	100	IRIS	01/15/09
Ethylbenzene	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09
Isopropylbenzene	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Methyl tert-butyl ether	Chronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Liver	300	ATSDR	01/15/09
Tetrachloroethene	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
Toluene	Chronic	8E-02	mg/kg-day	(4)	8E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09
Trichloroethene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	Chronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver	30	IRIS	01/15/09
Xylene (total)	Chronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
1,4-Dioxane	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver	100	ATSDR	01/15/09
2,4-Dimethylphenol	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Blood/CNS	3000	IRIS	01/15/09
2-Chlorophenol	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Reproductive	1000	IRIS	01/15/09
4-Chloro-3-methylphenol	Chronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Kidney	300	PPRTV	01/15/09
4-Chloroaniline	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Spleen	3000	IRIS	01/15/09
4-Methylphenol	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	CNS	1000	HEAST	July 1997
4-Nitrophenol	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	Chronic	6E-02	mg/kg-day	(4)	6E-02	mg/kg-day	Liver	3000	IRIS	01/15/09
Atrazine	Chronic	3.5E-02	mg/kg-day	(4)	3.5E-02	mg/kg-day	General Toxicity/Cardiovascular	100	IRIS	01/15/09
Benzaldehyde	Chronic	1E-01	mg/kg-day	(4)	1.0E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Benzo(a)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Benzo(k)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
Carbazole	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Kidney	3000	PPRTV	01/15/09
Hexachlorobenzene	Chronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	Chronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Naphthalene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	General Toxicity	3000	IRIS	01/15/09
N-Nitrosodiphenylamine	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Phenanthrene	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09
Aroclor-1242	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1248	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1254	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1260	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Total PCBs	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Total PCB Homologs	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
4,4'-DDD	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDE	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Aldrin	Chronic	3E-05	mg/kg-day	(4)	3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
alpha-BHC	Chronic	8E-03	mg/kg-day	(4)	8E-03	mg/kg-day	Liver	100	ATSDR	01/15/09
alpha-Chlordane	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
beta-BHC	Chronic	6E-04	mg/kg-day	(4)	6E-04	mg/kg-day	Liver	300	ATSDR	01/15/09
Dieldrin	Chronic	5E-05	mg/kg-day	(4)	5E-05	mg/kg-day	Liver	100	IRIS	01/15/09
Endosulfan I	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan II	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan Sulfate	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
gamma-BHC (Lindane)	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
gamma-Chlordane	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor epoxide	Chronic	1.3E-05	mg/kg-day	(4)	1.3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
Dioxin TEQ	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Chronic	1E+00	mg/kg-day	0.01	1.0E-02	mg/kg-day	Developmental	100	PPRTV	01/15/09
Antimony	Chronic	4E-04	mg/kg-day	0.15	6.0E-05	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
Arsenic	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Barium	Chronic	2E-01	mg/kg-day	0.07	1.4E-02	mg/kg-day	Kidney	300	IRIS	01/15/09
Beryllium	Chronic	2E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cadmium (drinking water)	Chronic	5E-04	mg/kg-day	0.05	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Cadmium (other media)	Chronic	1E-03	mg/kg-day	0.025	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Chromium	Chronic	3E-03	mg/kg-day	0.025	7.5E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cobalt	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Endocrine	3000	PPRTV	01/15/09
Copper	Chronic	4E-02	mg/kg-day	(4)	4E-02	mg/kg-day	GI System	100	HEAST	July 1997
Cyanide	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine/CNS	500	IRIS	01/15/09
Iron	Chronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Liver/GI System	1.5	PPRTV	01/15/09
Lead	Chronic	N/A	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Chronic	2.4E-02	mg/kg-day	0.04	9.6E-04	mg/kg-day	CNS	9	IRIS	01/15/09
Manganese (food)	Chronic	1.4E-01	mg/kg-day	1	1.4E-01	mg/kg-day	CNS	1	IRIS	01/15/09
Manganese (other media)	Chronic	7E-02	mg/kg-day	1	7.0E-02	mg/kg-day	CNS	3	IRIS	01/15/09
Mercury (other media)	Chronic	1E-04	mg/kg-day	(4)	1E-04	mg/kg-day	CNS	10	IRIS	01/15/09
Mercury (water)	Chronic	3E-04	mg/kg-day	0.07	2.1E-05	mg/kg-day	Immune System	1000	IRIS	01/15/09
Nickel	Chronic	2E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	01/15/09
Selenium	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Liver	3	IRIS	01/15/09
Silver	Chronic	5E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Thallium	Chronic	8E-05	mg/kg-day	(4)	8E-05	mg/kg-day	Blood	3000	IRIS	01/15/09
Vanadium	Chronic	7E-03	mg/kg-day	0.026	1.8E-04	mg/kg-day	Kidney	100	HEAST	July 1997
Zinc	Chronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Blood	3	IRIS	01/15/09
1,2,4-Trichlorobenzene	Subchronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Endocrine	1000	IRIS	01/15/09
1,2-Dichlorobenzene	Subchronic	9E-02	mg/kg-day	(4)	9E-02	mg/kg-day	Liver	1000	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,3-Dichlorobenzene	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine	100	ATSDR	01/15/09
1,4-Dichlorobenzene	Subchronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver	100	ATSDR	01/15/09
2-Butanone	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Developmental	1000	IRIS	01/15/09
Benzene	Subchronic	1.2E-02	mg/kg-day	(4)	1.2E-02	mg/kg-day	Immune System	100	IRIS	01/15/09
Bromodichloromethane	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Kidney	1000	IRIS	01/15/09
Chlorobenzene	Subchronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver/Kidney	300	IRIS	01/15/09
Chloroethane	Subchronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	CNS/Liver	3000	PPRTV	01/15/09
Chloroform	Subchronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	100	IRIS	01/15/09
Ethylbenzene	Subchronic	1E+00	mg/kg-day	(4)	1E+00	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Isopropylbenzene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Methyl tert-butyl ether	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Liver	300	ATSDR	01/15/09
Tetrachloroethene	Subchronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver	100	IRIS	01/15/09
Toluene	Subchronic	8E-01	mg/kg-day	(4)	8E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Trichloroethene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver	30	IRIS	01/15/09
Xylene (Total)	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
1,4-Dioxane	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Liver	100	ATSDR	01/15/09
2,4-Dimethylphenol	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	Blood/CNS	300	HEAST	July 1997
2-Chlorophenol	Subchronic	5E-02	mg/kg-day	(4)	5E-02	mg/kg-day	Reproductive	100	IRIS	01/15/09
4-Chloro-3-methylphenol	Subchronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Kidney	300	PPRTV	01/15/09
4-Chloroaniline	Subchronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Spleen	3000	IRIS	01/15/09
4-Methylphenol	Subchronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	CNS	1000	HEAST	July 1997
4-Nitrophenol	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Liver	300	IRIS	01/15/09
Atrazine	Subchronic	3.5E-02	mg/kg-day	(4)	3.5E-02	mg/kg-day	General Toxicity/Cardiovascular	100	IRIS	01/15/09
Benzaldehyde	Subchronic	1E+00	mg/kg-day	(4)	1.0E+00	mg/kg-day	Kidney	100	IRIS	01/15/09
Benzo(a)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Benzo(k)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver	1000	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Carbazole	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Subchronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Kidney	3000	PPRTV	01/15/09
Hexachlorobenzene	Subchronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	Subchronic	2E+00	mg/kg-day	(4)	2E+00	mg/kg-day	Kidney	100	IRIS	01/15/09
Naphthalene	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	300	IRIS	04/01/07
N-Nitrosodiphenylamine	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	Subchronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Phenanthrene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Aroclor-1242	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1248	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1254	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1260	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Total PCBs	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Total PCB Homologs	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
4,4'-DDD	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDE	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Aldrin	Subchronic	3E-05	mg/kg-day	(4)	3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
alpha-BHC	Subchronic	8E-03	mg/kg-day	(4)	8E-03	mg/kg-day	Liver	100	ATSDR	01/15/09
alpha-Chlordane	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
beta-BHC	Subchronic	6E-04	mg/kg-day	(4)	6E-04	mg/kg-day	Liver	300	ATSDR	01/15/09
Dieldrin	Subchronic	5E-05	mg/kg-day	(4)	5E-05	mg/kg-day	Liver	100	IRIS	01/15/09
Endosulfan I	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan II	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan Sulfate	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
gamma-BHC (Lindane)	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
gamma-Chlordane	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Heptachlor epoxide	Subchronic	1.3E-05	mg/kg-day	(4)	1.3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
Dioxin TEQ	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	Subchronic	1E+00	mg/kg-day	0.01	1.0E-02	mg/kg-day	Developmental	100	PPRTV	01/15/09
Antimony	Subchronic	4E-04	mg/kg-day	0.15	6.0E-05	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
Arsenic	Subchronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Barium	Subchronic	2E-01	mg/kg-day	0.07	1.4E-02	mg/kg-day	Kidney	300	IRIS	01/15/09
Beryllium	Subchronic	2E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cadmium (drinking water)	Subchronic	5E-04	mg/kg-day	0.05	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Cadmium (other media)	Subchronic	1E-03	mg/kg-day	0.025	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Chromium	Subchronic	9E-03	mg/kg-day	0.025	2.3E-04	mg/kg-day	GI System	100	IRIS	01/15/09
Cobalt	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Endocrine	300	PPRTV	01/15/09
Copper	Subchronic	4E-02	mg/kg-day	(4)	4E-02	mg/kg-day	GI System	100	HEAST	July 1997
Cyanide	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine/CNS	500	IRIS	01/15/09
Iron	Subchronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Liver/GI System	1.5	PPRTV	01/15/09
Lead	Subchronic	N/A	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Subchronic	2.4E-02	mg/kg-day	0.04	9.6E-04	mg/kg-day	CNS	9	IRIS	01/15/09
Manganese (food)	Subchronic	1.4E-01	mg/kg-day	1	1.4E-01	mg/kg-day	CNS	1	IRIS	01/15/09
Manganese (other media)	Subchronic	7E-02	mg/kg-day	1	7.0E-02	mg/kg-day	CNS	3	IRIS	01/15/09
Mercury (other media)	Subchronic	1E-04	mg/kg-day	(4)	1E-04	mg/kg-day	CNS	10	IRIS	01/15/09
Mercury (water)	Subchronic	3E-03	mg/kg-day	0.07	2.1E-04	mg/kg-day	Immune System	100	IRIS	01/15/09
Nickel	Subchronic	2E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	01/15/09
Selenium	Subchronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Liver	3	IRIS	01/15/09
Silver	Subchronic	5E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Thallium	Subchronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Blood	300	IRIS	01/15/09
Vanadium	Subchronic	7E-03	mg/kg-day	0.026	1.8E-04	mg/kg-day	Kidney	100	HEAST	July 1997
Zinc	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Blood	3	IRIS	01/15/09

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)

(1) Oral Absorption Efficiencies from Exhibit 4-1, RAGS Part E, USEPA 2004b.
Oral absorption efficiencies for aluminum, cobalt, copper and iron obtained from ATSDR Toxicological Profiles.

(2) Calculated as: (oral RfD) x (oral to dermal adjustment factor).

(3) RfD for Aroclor 1254 used as a surrogate for Aroclor 1242, Aroclor 1248, and Aroclor 1260 (High risk and persistence; upper-bound slope factor).
RfDs for manganese are based on total allowable intake (10 mg/day) minus the background intake (5 mg/day). The remaining intake (5 mg/day) is divided by 70 kg.
RfD for thallium is based on thallium sulfate.
RfD for mercury (water/inorganic) based on mercuric chloride; for mercury (other media/organic), based on methylmercury.
RfD for acenaphthene used as a surrogate for acenaphthylene.
RfD for pyrene used as a surrogate for phenanthrene and benzo(g,h,i)perylene.
RfD for nickel is based on nickel, soluble salts.
RfD for chlordane used as a surrogate for alpha-chlordane and gamma-chlordane.
Subchronic RfD for chloroethane used as chronic RfD.
Subchronic RfD for 4-chloro-3-methylphenol used as chronic RfD.
Subchronic RfD for dibenzofuran used as chronic RfD.
Subchronic RfD for 1,3-dichlorobenzene used as chronic RfD.
Subchronic RfD for beta-BHC used as chronic RfD.
RfD for endosulfan used as a surrogate for endosulfan I, endosulfan II and endosulfan sulfate.

(4) Oral absorption efficiency exceeds 50%. Therefore, no adjustment of the oral reference dose is necessary (USEPA, 2001).
When the chronic RfD is based on a subchronic study, a subchronic RfD has been developed by the elimination of the 10-fold uncertainty factor for subchronic to chronic adjustment. If no subchronic data are available, the chronic RfD has been adopted as the subchronic RfD.

(5) Permeability constants (Kp) used for water absorption calculations: 2E-03 cm/hr for chromium (VI), 4E-04 cm/hr for cobalt, 1E-04 cm/hr for lead, 2E-04 cm/hr for nickel, 6E-04 cm/hr for silver and zinc, and 1E-03 cm/hr for the remaining inorganics (USEPA, 2004); for organics, see Appendix U.

(6) See Appendix Z for lead model calculations.

IRIS = Integrated Risk Information System
HEAST = Health Effects Assessment Summary Tables
N/A = Not Applicable/Not Available
NOAEL = No Observed Adverse Effects Level
STSC = Superfund Technical Support Center
ATSDR = Agency for Toxic Substances and Disease Registry
PPRTV = Provisional Peer Reviewed Toxicity Values developed by STSC

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,1-Dichloroethane	Chronic	5.0E+02	ug/m^3	N/A	N/A	Kidney	1000	HEAST	July 1997
1,2,4-Trichlorobenzene	Chronic	4.0E+00	ug/m^3	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
1,2,4-Trimethylbenzene	Chronic	7.0E+00	ug/m^3	N/A	N/A	Blood	3000	PPRTV	01/15/09
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	Chronic	2.0E+02	ug/m^3	N/A	N/A	General Toxicity	1000	HEAST	July 1997
1,3,5-Trimethylbenzene	Chronic	6.0E+00	ug/m^3	N/A	N/A	Respiratory/CNS/Blood	3000	PPRTV	01/15/09
1,3-Dichlorobenzene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	Chronic	8.0E+02	ug/m^3	N/A	N/A	Liver	100	IRIS	01/15/09
2-Butanone	Chronic	5.0E+03	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
4-Ethyltoluene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	Chronic	3.0E+01	ug/m^3	N/A	N/A	Immune System	300	IRIS	01/15/09
Bromodichloromethane	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	Chronic	7.0E+02	ug/m^3	N/A	N/A	CNS	30	IRIS	01/15/09
Carbon tetrachloride	Chronic	1.9E+02	ug/m^3	N/A	N/A	Liver	30	ATSDR	01/15/09
Chlorobenzene	Chronic	5.0E+01	ug/m^3	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
Chloroethane	Chronic	1.0E+04	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
Chloroform	Chronic	1.0E+02	ug/m^3	N/A	N/A	Liver	100	ATSDR	01/15/09
cis-1,2-Dichloroethene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	Chronic	2.0E+02	ug/m^3	N/A	N/A	Liver	10000	HEAST	July 1997
Ethylbenzene	Chronic	1.0E+03	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
Isopropylbenzene	Chronic	4.0E+02	ug/m^3	N/A	N/A	Kidney	1000	IRIS	01/15/09
Methyl acetate	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl ether	Chronic	3.0E+03	ug/m^3	N/A	N/A	Liver/Kidney	100	IRIS	01/15/09
Methylene Chloride	Chronic	1.1E+03	ug/m^3	N/A	N/A	Liver	30	ATSDR	01/15/09
Tetrachloroethene	Chronic	2.7E+02	ug/m^3	N/A	N/A	CNS	100	ATSDR	01/15/09
Toluene	Chronic	5.0E+03	ug/m^3	N/A	N/A	CNS	10	IRIS	01/15/09
trans-1,2-Dichloroethene	Chronic	6.0E+01	ug/m^3	N/A	N/A	Respiratory/Liver	3000	PPRTV	01/15/09
Trichloroethene	Chronic	1.0E+01	ug/m^3	N/A	N/A	CNS	1000	NYSDOH	01/15/09
Vinyl Chloride	Chronic	1.0E+02	ug/m^3	N/A	N/A	Liver	30	IRIS	01/15/09
Xylene (Total)	Chronic	1.0E+02	ug/m^3	N/A	N/A	CNS	300	IRIS	01/15/09

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,1'-Biphenyl	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorophenol	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	Chronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acenaphthene	Chronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acetophenone	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzaldehyde	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Chronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Benzo(k)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbazole	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	Chronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Phenanthrene	Chronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Aroclor-1248	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1260	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dioxin TEQ	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Chronic	1.5E-03	ug/m^3	N/A	N/A	Developmental	30	CalEPA	01/15/09
Cadmium (drinking water)	Chronic	1.0E-02	ug/m^3	N/A	N/A	Kidney	9	ATSDR	01/15/09
Cadmium (other media)	Chronic	1.0E-02	ug/m^3	N/A	N/A	Kidney	9	ATSDR	01/15/09

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Chromium	Chronic	1.0E-01	ug/m^3	N/A	N/A	Respiratory	300	IRIS	01/15/09
Cobalt	Chronic	6.0E-03	ug/m^3	N/A	N/A	Respiratory	300	PPRTV	01/15/09
Copper	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	Chronic	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Chronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (food)	Chronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (other media)	Chronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Mercury (other media)	Chronic	3.0E-02	ug/m^3	N/A	N/A	CNS	300	CalEPA	01/15/09
Mercury (water)	Chronic	3.0E-02	ug/m^3	N/A	N/A	CNS	300	CalEPA	01/15/09
Thallium	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethane	Subchronic	5.0E+03	ug/m^3	N/A	N/A	Kidney	100	HEAST	July 1997
1,2,4-Trichlorobenzene	Subchronic	4.0E+00	ug/m^3	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
1,2,4-Trimethylbenzene	Subchronic	7.0E+01	ug/m^3	N/A	N/A	Blood	300	PPRTV	01/15/09
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	Subchronic	2.0E+03	ug/m^3	N/A	N/A	General Toxicity	100	HEAST	July 1997
1,3,5-Trimethylbenzene	Subchronic	6.0E+01	ug/m^3	N/A	N/A	Respiratory/CNS/Blood	300	PPRTV	01/15/09
1,3-Dichlorobenzene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	Subchronic	2.4E+03	ug/m^3	N/A	N/A	Liver	30	IRIS	01/15/09
2-Butanone	Subchronic	5.0E+03	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
4-Ethyltoluene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	Subchronic	9.0E+01	ug/m^3	N/A	N/A	Immune System	100	IRIS	01/15/09
Bromodichloromethane	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	Subchronic	7.0E+02	ug/m^3	N/A	N/A	CNS	30	IRIS	01/15/09
Carbon tetrachloride	Subchronic	1.9E+02	ug/m^3	N/A	N/A	Liver	30	ATSDR	01/15/09
Chlorobenzene	Subchronic	5.0E+02	ug/m^3	N/A	N/A	Liver/Kidney	100	PPRTV	01/15/09
Chloroethane	Subchronic	1.0E+04	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
Chloroform	Subchronic	2.5E+02	ug/m^3	N/A	N/A	Liver	100	ATSDR	01/15/09
cis-1,2-Dichloroethene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Dichlorodifluoromethane	Subchronic	2.0E+03	ug/m^3	N/A	N/A	Liver	1000	HEAST	July 1997
Ethylbenzene	Subchronic	1.0E+03	ug/m^3	N/A	N/A	Developmental	300	IRIS	01/15/09
Isopropylbenzene	Subchronic	4.0E+03	ug/m^3	N/A	N/A	Kidney	100	IRIS	01/15/09
Methyl acetate	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl Ether	Subchronic	3.0E+03	ug/m^3	N/A	N/A	Liver/Kidney	100	IRIS	01/15/09
Methylene Chloride	Subchronic	1.1E+03	ug/m^3	N/A	N/A	Liver	100	ATSDR	01/15/09
Tetrachloroethene	Subchronic	2.7E+02	ug/m^3	N/A	N/A	CNS	100	ATSDR	01/15/09
Toluene	Subchronic	5.0E+03	ug/m^3	N/A	N/A	CNS	10	IRIS	01/15/09
trans-1,2-Dichloroethene	Subchronic	6.0E+01	ug/m^3	N/A	N/A	Respiratory/Liver	3000	PPRTV	01/15/09
Trichloroethene	Subchronic	1.0E+02	ug/m^3	N/A	N/A	CNS	100	NYSDOH	01/15/09
Vinyl Chloride	Subchronic	1.0E+02	ug/m^3	N/A	N/A	Liver	30	IRIS	01/15/09
Xylene (Total)	Subchronic	3.0E+02	ug/m^3	N/A	N/A	CNS	100	IRIS	01/15/09
1,1'-Biphenyl	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorophenol	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	Subchronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acenaphthene	Subchronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acetophenone	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzaldehyde	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Subchronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Benzo(k)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbazole	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	Subchronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Phenanthrene	Subchronic	3.0E+00	ug/m^3	N/A	N/A	Respiratory	3000	IRIS	01/15/09

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Aroclor-1248	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1260	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dioxin TEQ	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Subchronic	1.5E-03	ug/m^3	N/A	N/A	Developmental	30	CalEPA	01/15/09
Cadmium (drinking water)	Subchronic	1.0E-02	ug/m^3	N/A	N/A	Kidney	9	ATSDR	01/15/09
Cadmium (other media)	Subchronic	1.0E-02	ug/m^3	N/A	N/A	Kidney	9	ATSDR	01/15/09
Chromium	Subchronic	3.0E-01	ug/m^3	N/A	N/A	Respiratory	100	IRIS	01/15/09
Cobalt	Subchronic	2.0E-02	ug/m^3	N/A	N/A	Respiratory	100	PPRTV	01/15/09
Copper	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	Subchronic	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Subchronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (food)	Subchronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (other media)	Subchronic	5.0E-02	ug/m^3	N/A	N/A	CNS	1000	IRIS	01/15/09
Mercury (other media)	Subchronic	3.0E-02	ug/m^3	N/A	N/A	CNS	300	CalEPA	01/15/09
Mercury (water)	Subchronic	3.0E-02	ug/m^3	N/A	N/A	CNS	300	CalEPA	01/15/09
Thallium	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Value developed by STSC

CalEPA = California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

ATSDR = Agency for Toxic Substances and Disease Registry

NYSDOH = New York State Department of Health

N/A = Not Applicable or Not Available

(1) RfC for naphthalene used as a surrogate for all noncarcinogenic PAHs.

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,2,4-Trichlorobenzene	3.6E-03	(mg/kg-day)$^{-1}$	(1)	3.6E-03	(mg/kg-day)$^{-1}$	C	CalEPA	01/15/09
1,2-Dichlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,3-Dichlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dichlorobenzene	5.4E-03	(mg/kg-day)$^{-1}$	(1)	5.4E-03	(mg/kg-day)$^{-1}$	C	CalEPA	01/15/09
2-Butanone	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzene	5.5E-02	(mg/kg-day)$^{-1}$	(1)	5.5E-02	(mg/kg-day)$^{-1}$	A	IRIS	01/15/09
Bromodichloromethane	6.2E-02	(mg/kg-day)$^{-1}$	(1)	6.2E-02	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Chlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroethane	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroform	3.10E-02	(mg/kg-day)$^{-1}$	(1)	3.10E-02	(mg/kg-day)$^{-1}$	B2	CalEPA	01/15/09
Ethylbenzene	1.10E-02	(mg/kg-day)$^{-1}$	(1)	1.10E-02	(mg/kg-day)$^{-1}$	B2	CalEPA	01/15/09
Isopropylbenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Methyl tert-butyl ether	1.8E-03	(mg/kg-day)$^{-1}$	(1)	1.8E-03	(mg/kg-day)$^{-1}$	B2	CalEPA	01/15/09
Tetrachloroethene	5.4E-01	(mg/kg-day)$^{-1}$	(1)	5.4E-01	(mg/kg-day)$^{-1}$	B2	CalEPA	01/15/09
Toluene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Trichloroethene	1.3E-02	(mg/kg-day)$^{-1}$	(1)	1E-02	(mg/kg-day)$^{-1}$	C-B2	CalEPA	01/15/09
Vinyl Chloride	7.2E-01	(mg/kg-day)$^{-1}$	(1)	7.2E-01	(mg/kg-day)$^{-1}$	A	IRIS	01/15/09
Xylene (Total)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dioxane	1.1E-02	(mg/kg-day)$^{-1}$	(1)	1.1E-02	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
2,4-Dimethylphenol	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
2-Chlorophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Chloro-3-methylphenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Chloroaniline	2.0E-01	(mg/kg-day)$^{-1}$	(1)	2.0E-01	(mg/kg-day)$^{-1}$	C	PPRTV	01/15/09
4-Methylphenol	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
4-Nitrophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Atrazine	2.3E-01	(mg/kg-day)$^{-1}$	(1)	2.3E-01	(mg/kg-day)$^{-1}$	C	CalEPA	01/15/09
Benzaldehyde	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	7.3E-01	(mg/kg-day)$^{-1}$	(1)	7.3E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Benzo(a)pyrene	7.3E+00	(mg/kg-day)$^{-1}$	(1)	7.3E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Benzo(b)fluoranthene	7.3E-01	(mg/kg-day)$^{-1}$	(1)	7.3E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Benzo(g,h,i)perylene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Benzo(k)fluoranthene	7.3E-02	(mg/kg-day)$^{-1}$	(1)	7.3E-02	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Bis(2-ethylhexyl)phthalate	1.4E-02	(mg/kg-day)$^{-1}$	(1)	1.4E-02	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Carbazole	2E-02	(mg/kg-day)$^{-1}$	(1)	2E-02	(mg/kg-day)$^{-1}$	B2	HEAST	July 1997
Chrysene	7.3E-03	(mg/kg-day)$^{-1}$	(1)	7.3E-03	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Dibenz(a,h)anthracene	7.3E+00	(mg/kg-day)$^{-1}$	(1)	7.3E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Dibenzofuran	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Hexachlorobenzene	1.60E+00	(mg/kg-day)$^{-1}$	(1)	1.6E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	7.3E-01	(mg/kg-day)$^{-1}$	(1)	7.3E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Isophorone	9.50E-04	(mg/kg-day)$^{-1}$	(1)	9.50E-04	(mg/kg-day)$^{-1}$	C	IRIS	01/15/09
Naphthalene	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
N-Nitrosodiphenylamine	4.90E-03	(mg/kg-day)$^{-1}$	(1)	4.90E-03	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Pentachlorophenol	1.2E-01	(mg/kg-day)$^{-1}$	(1)	1.2E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Phenanthrene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Aroclor-1242	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Aroclor-1248	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Aroclor-1254	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Aroclor-1260	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Total PCBs	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Total PCB Homologs	2E+00	(mg/kg-day)$^{-1}$	(1)	2E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
4,4'-DDD	2.4E-01	(mg/kg-day)$^{-1}$	(1)	2.4E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
4,4'-DDE	3.4E-01	(mg/kg-day)$^{-1}$	(1)	3.4E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
4,4'-DDT	3.4E-01	(mg/kg-day)$^{-1}$	(1)	3.4E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Aldrin	1.7E+01	(mg/kg-day)$^{-1}$	(1)	1.7E+01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
alpha-BHC	6.3E+00	(mg/kg-day)$^{-1}$	(1)	6.3E+00	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
alpha-Chlordane	3.5E-01	(mg/kg-day)$^{-1}$	(1)	3.5E-01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
beta-BHC	1.8E+00	(mg/kg-day)$^{-1}$	(1)	1.8E+00	(mg/kg-day)$^{-1}$	C	IRIS	01/15/09
Dieldrin	1.6E+01	(mg/kg-day)$^{-1}$	(1)	1.6E+01	(mg/kg-day)$^{-1}$	B2	IRIS	01/15/09
Endosulfan I	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Endosulfan II	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Endosulfan Sulfate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	1.1E+00	(mg/kg-day)$^{-1}$	(1)	1.1E+00	(mg/kg-day)$^{-1}$	C-B2	CalEPA	01/15/09

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
gamma-Chlordane	3.5E-01	(mg/kg-day) $^{-1}$	(1)	3.5E-01	(mg/kg-day) $^{-1}$	B2	IRIS	01/15/09
Heptachlor	4.5E+00	(mg/kg-day) $^{-1}$	(1)	4.5E+00	(mg/kg-day) $^{-1}$	B2	IRIS	01/15/09
Heptachlor epoxide	9.1E+00	(mg/kg-day) $^{-1}$	(1)	9.1E+00	(mg/kg-day) $^{-1}$	B2	IRIS	01/15/09
Dioxin TEQ	1.3E+05	(mg/kg-day) $^{-1}$	(1)	1.3E+05	(mg/kg-day) $^{-1}$	B2	CalEPA	01/15/09
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Arsenic	1.5E+00	(mg/kg-day) $^{-1}$	(1)	1.5E+00	(mg/kg-day) $^{-1}$	A	IRIS	01/15/09
Barium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Beryllium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cadmium (drinking water)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cadmium (other media)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chromium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cobalt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cyanide	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Manganese (drinking water)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (food)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (other media)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Mercury (other media)	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Mercury (water)	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Nickel	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Selenium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Silver	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Thallium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)

IRIS = Integrated Risk Information System

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Value developed by STSC

N/A = Not Applicable/Not Available

CalEPA = California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

Slope factor for benzo(a)pyrene, along with the appropriate relative potency factor (USEPA, 1993), used for the other carcinogenic PAHs.

The slope factor presented for benzene is the high end of the range from 0.015 to 0.055 per mg/kg-day.

For PCBs, the RME slope factor presented represents the upper-bound slope factor for high risk and persistence situations. The CTE slope factor is 1 per mg/kg-day and represents the central-estimate slope factor.

(1) Oral absorption efficiency exceeds 50%. Therefore, no adjustment of the oral slope factor is necessary.

(2) Calculated as: (oral slope factor) / (oral to dermal adjustment factor)

(3) See Appendix Z for lead model calculations.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen (by the oral route)

E - Evidence of noncarcinogenicity

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,1-Dichloroethane	1.60E-06	$(ug/m^3)^{-1}$	N/A	N/A	C	CalEPA	01/15/09
1,2,4-Trichlorobenzene	N/A	N/A	N/A	N/A	C	CalEPA	01/15/09
1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,3,5-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dichlorobenzene	1.10E-05	$(ug/m^3)^{-1}$	N/A	N/A	C	CalEPA	01/15/09
2-Butanone	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
4-Ethyltoluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	7.8E-06	$(ug/m^3)^{-1}$	N/A	N/A	A	IRIS	01/15/09
Bromodichloromethane	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Carbon disulfide	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon tetrachloride	1.5E-05	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Chlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroethane	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
cis-1,2-Dichloroethene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Dichlorodifluoromethane	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Ethylbenzene	2.50E-06	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Isopropylbenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Methyl acetate	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl ether	2.6E-07	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Methylene Chloride	4.7E-07	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Tetrachloroethene	5.9E-06	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Toluene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
trans-1,2-Dichloroethene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Trichloroethene	2.0E-06	$(ug/m^3)^{-1}$	N/A	N/A	C-B2	CalEPA	01/15/09
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	N/A	N/A	A	IRIS	01/15/09
Xylene (Total)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,1'-Biphenyl	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
2-Chlorophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Acenaphthene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Acetophenone	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzaldehyde	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	1.1E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Benzo(a)pyrene	1.1E-03	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Benzo(b)fluoranthene	1.1E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Benzo(g,h,i)perylene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzo(k)fluoranthene	1.1E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Bis(2-ethylhexyl)phthalate	NA	N/A	N/A	N/A	B2	IRIS	01/15/09
Carbazole	N/A	N/A	N/A	N/A	B2	HEAST	July 1997
Chrysene	1.1E-05	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Dibenz(a,h)anthracene	1.2E-03	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Dibenzofuran	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	1.1E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Naphthalene	3.40E-05	$(ug/m^3)^{-1}$	N/A	N/A	C	CalEPA	01/15/09
Phenanthrene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Aroclor-1248	5.7E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Aroclor-1254	5.7E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Aroclor-1260	5.7E-04	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Dieldrin	4.6E-03	$(ug/m^3)^{-1}$	N/A	N/A	B2	IRIS	01/15/09
Dioxin TEQ	3.8E+01	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	01/15/09
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	IRIS	01/15/09
Arsenic	4.30E-03	$(ug/m^3)^{-1}$	N/A	N/A	A	IRIS	01/15/09
Cadmium (drinking water)	1.80E-03	$(ug/m^3)^{-1}$	N/A	N/A	B1	IRIS	01/15/09
Cadmium (other media)	1.80E-03	$(ug/m^3)^{-1}$	N/A	N/A	B1	IRIS	01/15/09

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Chromium	8.40E-02	$(ug/m^3)^{-1}$	N/A	N/A	A	IRIS	01/15/09
Cobalt	9.00E-03	$(ug/m^3)^{-1}$	N/A	N/A	B2	PPRTV	01/15/09
Copper	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Iron	N/A	N/A	N/A	N/A	N/A	N/A	01/15/09
Lead	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Manganese (drinking water)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (food)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (other media)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Mercury (other media)	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Mercury (water)	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Thallium	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

IRIS = Integrated Risk Information System

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Values developed by STSC

CalEPA = California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

HEAST = Health Effects Assessment Summary Tables

N/A = Not Applicable

(1) See Appendix Z for lead model calculations.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen (by the oral route)

E - Evidence of noncarcinogenicity

The unit risk presented for benzene is the high end of the range from 2.2E-06 to 7E-06 per ug/m^3.

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
			Exp. Route Total								8E-06					9E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.6E-06	mg/kg-day	1.0E-02	mg/kg-day	9.6E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.0E-04
				Chromium	3E+00	ug/L	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								2E-08					3E-03
		Exposure Point Total									2E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04
				Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04
				Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									4E-06					3E-02

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.1.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

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CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

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Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-02	mg/kg-day	4.8E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.4E-09	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	7.5E-05	mg/kg-day	6.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	1.8E-04	mg/kg-day	5.5E-05
			Exp. Route Total								8E-09					1E-03
		Exposure Point Total									8E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04

TABLE 7.1.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05
			Exp. Route Total								3E-07					5E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					5E-03
		Exposure Point Total									1E-06					1E-02

TABLE 7.1.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
			Exp. Route Total								8E-06					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.7E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-09					3E-03
		Exposure Point Total									6E-09					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
				Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03
				Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									3E-06					5E-02

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.2.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.9E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.7E-10	3.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-11	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	2.6E-08	mg/kg-day	5.0E-05	mg/kg-day	5.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	1.0E-03	mg/kg-day	8.5E-04
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	8.7E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	6.5E-08	mg/kg-day	1.0E-04	mg/kg-day	6.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	8.0E-05	mg/kg-day	2.6E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	7.0E-03	mg/kg-day	5.0E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-01	mg/kg-day	9.7E-05
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.9E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.3E-10	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.2E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.2.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	3.0E-02	mg/kg-day	2.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.2E-08	4.5E-08	mg/kg-day	5.0E-05	mg/kg-day	9.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	9.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.0E-03
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.2.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.9E-09	2.1E-09	mg/kg-day	5.0E-05	mg/kg-day	4.2E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	7.5E-05	mg/kg-day	7.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-09					1E-03
		Exposure Point Total									3E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04
				Dieldrin	1E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	5E+03	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04
				Antimony	5E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04
				Arsenic	5E+00	mg/kg	4.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03

TABLE 7.2.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04
			Exp. Route Total								3E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-07					6E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.2.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	9.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.8E-06	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-07	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.0E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.5E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.1E-09	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.5E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	4.0E-03	mg/kg-day	5.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	5.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	3.0E-02	mg/kg-day	2.2E-04
				Aroclor-1260	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.6E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	4.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.5E-07	1.3E-07	mg/kg-day	5.0E-05	mg/kg-day	2.6E-03
				Dioxin TEQ	5E-05	mg/kg	1.6E-11	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.0E-06	4.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	3.7E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	1.0E+00	mg/kg-day	1.0E-02
				Arsenic	2E+01	mg/kg	5.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.7E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.4E-02
				Cadmium (other media)	1E+01	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-03	mg/kg-day	1.1E-02
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	1E+01	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Copper	3E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	4.0E-02	mg/kg-day	8.2E-03
				Iron	2E+04	mg/kg	8.6E-03	mg/kg-day	N/A	N/A	N/A	2.4E-02	mg/kg-day	7.0E-01	mg/kg-day	3.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	3.3E-04	mg/kg-day	N/A	N/A	N/A	9.3E-04	mg/kg-day	7.0E-02	mg/kg-day	1.3E-02
				Mercury (other media)	6E-01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	1.0E-04	mg/kg-day	6.1E-03
				Thallium	2E+00	mg/kg	6.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.3E-02
			Exp. Route Total								2E-05					3E-01
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	8.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-06	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.6E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	4.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.7E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.5E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	4.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1260	4E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-07	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	1E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.0E-07	8.7E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.0E-07	8.7E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-06	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.9E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								1E-05					3E-02
		Exposure Point Total									4E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.3.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.3E-09	6.7E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-10	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.4E-08	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Aroclor-1260	4E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-07	5.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03
				Dioxin TEQ	4E-05	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.7E-07	1.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	5.8E-04	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	1.0E+00	mg/kg-day	4.5E-03
				Arsenic	2E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.4E-02
				Cadmium (other media)	1E+01	mg/kg	6.3E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	1.0E-03	mg/kg-day	4.9E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	1E+01	mg/kg	6.3E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	4.0E-02	mg/kg-day	3.6E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	7.0E-02	mg/kg-day	5.8E-03
				Mercury (other media)	6E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	1.0E-04	mg/kg-day	2.7E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								4E-06					1E-01
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	3.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	4.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.4E-10	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.7E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	3.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	3.0E-02	mg/kg-day	1.7E-04
				Aroclor-1260	4E-01	mg/kg	3.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.7E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	9.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.6E-07	7.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	4E-05	mg/kg	8.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.0E-07	6.3E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.3.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	3.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.4E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.4E-03
				Cadmium (other media)	1E+01	mg/kg	8.3E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								4E-06					3E-02
		Exposure Point Total									8E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.4.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.5E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-08	6.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	3.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.2E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	1E-01	mg/kg	5.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	4.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.6E-07	5.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	5E-01	mg/kg	1.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.5E-06	4.4E-07	mg/kg-day	5.0E-05	mg/kg-day	8.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.7E-03	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	7.6E-03
				Antimony	1E+00	mg/kg	3.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-04	mg/kg-day	2.7E-03
				Arsenic	1E+01	mg/kg	4.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-06	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Cadmium (other media)	4E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	4E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				Copper	1E+02	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03
				Iron	2E+04	mg/kg	5.6E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-02	mg/kg-day	6.5E-03
				Mercury (other media)	8E-01	mg/kg	2.8E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	1.0E-04	mg/kg-day	7.7E-03
				Thallium	2E-01	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	8.0E-05	mg/kg-day	2.2E-03
				Vanadium	3E+01	mg/kg	8.8E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.5E-03
				Zinc	1E+02	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-01	mg/kg-day	3.9E-04
			Exp. Route Total								1E-05					2E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-09	5.5E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	1E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.8E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.4.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-07	4.7E-07	mg/kg-day	2.0E-05	mg/kg-day	2.4E-02
				Dieldrin	5E-01	mg/kg	1.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-06	2.9E-07	mg/kg-day	5.0E-05	mg/kg-day	5.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-06	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	7.6E-03
				Cadmium (other media)	4E+00	mg/kg	8.8E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	9.9E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					4E-02
		Exposure Point Total									2E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.4.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.9E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.7E-09	2.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.6E-10	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	1E-01	mg/kg	8.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.9E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.0E-07	1.9E-07	mg/kg-day	5.0E-05	mg/kg-day	3.9E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	3.3E-03
				Antimony	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	4.8E-07	mg/kg-day	4.0E-04	mg/kg-day	1.2E-03
				Arsenic	1E+01	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	4E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	4E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				Copper	1E+02	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	8.8E-04	mg/kg-day	N/A	N/A	N/A	6.8E-03	mg/kg-day	7.0E-01	mg/kg-day	9.7E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	2.9E-03
				Mercury (other media)	8E-01	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03
				Thallium	2E-01	mg/kg	9.9E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	8.0E-05	mg/kg-day	9.6E-04
				Vanadium	3E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-01	mg/kg-day	1.7E-04
			Exp. Route Total								2E-06					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-08	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.8E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.4.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.3E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.3E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.7E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-08	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	3.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.2E-10	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.3E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	3.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.9E-08	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	1E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	7.7E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	5E-05	mg/kg	3.7E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.8E-07	2.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	8.6E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-06	9.4E-06	mg/kg-day	3.0E-04	mg/kg-day	3.1E-02
				Cadmium (other media)	1E+01	mg/kg	9.3E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	1.0E-03	mg/kg-day	6.5E-03
				Chromium	2E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	1E+01	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	3.0E-04	mg/kg-day	2.2E-02
				Copper	3E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.8E-03
				Iron	2E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	1.4E-02	mg/kg-day	7.0E-01	mg/kg-day	2.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	7.7E-05	mg/kg-day	N/A	N/A	N/A	5.4E-04	mg/kg-day	7.0E-02	mg/kg-day	7.7E-03
				Mercury (other media)	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	1.0E-04	mg/kg-day	3.5E-03
				Thallium	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	8.0E-05	mg/kg-day	1.3E-02
			Exp. Route Total								1E-05					2E-01
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.3E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.9E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.4E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	6.9E-05
				Aroclor-1260	4E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.2E-08	3.2E-08	mg/kg-day	5.0E-05	mg/kg-day	6.3E-04
				Dioxin TEQ	5E-05	mg/kg	4.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.9E-08	3.2E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03
				Cadmium (other media)	1E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								4E-06					1E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	4.1E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.4E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	8.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.8E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	8.6E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	1.0E-02	mg/kg-day	6.0E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.8E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	7.5E-05	mg/kg-day	1.9E-03

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	4.0E-08	mg/kg-day	1.8E-04	mg/kg-day	2.2E-04
			Exp. Route Total								2E-08					3E-03
		Exposure Point Total									2E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	5.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	3E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.3E-08	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1260	4E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.1E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Dieldrin	7E-03	mg/kg	2.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.5E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	3.9E-05
				Aluminum	8E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	2.3E-03	mg/kg-day	1.0E+00	mg/kg-day	2.3E-03
				Antimony	2E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	9E+00	mg/kg	3.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.8E-07	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03
				Cadmium (other media)	2E+01	mg/kg	7.2E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	1.0E-03	mg/kg-day	5.0E-03
				Chromium	1E+02	mg/kg	5.1E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.2E-02
				Cobalt	6E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Copper	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.2E-03
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-01	mg/kg-day	7.7E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.7E-05	mg/kg-day	7.0E-02	mg/kg-day	1.1E-03
				Mercury (other media)	5E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	4E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-03	mg/kg-day	7.6E-04
			Exp. Route Total								4E-06					7E-02
			Dermal													

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzo(a)anthracene	3E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.4E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-08	1.6E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.8E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.5E-05
				Carbazole	3E-01	mg/kg	3.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.3E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.6E-09	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.5E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.2E-02
				Aroclor-1260	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-03	mg/kg	6.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.0E-08	4.5E-09	mg/kg-day	5.0E-05	mg/kg-day	8.9E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	2.5E-05	mg/kg-day	4.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-05					8E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.5.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.0E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	9.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.8E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-07	7.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.4E-09	mg/kg-day	N/A	N/A	N/A	3.1E-08	mg/kg-day	4.0E-03	mg/kg-day	7.7E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1260	4E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-09	5.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	1E-01	mg/kg	2.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.4E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	4E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	9.8E-08	5.3E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Arsenic	2E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	7.9E-03
				Cadmium (other media)	1E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.5E-03
				Copper	3E+02	mg/kg	6.8E-06	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	4.0E-02	mg/kg-day	1.2E-03
				Iron	2E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	1.9E-03
				Mercury (other media)	6E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	2E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	8.0E-05	mg/kg-day	3.4E-03
			Exp. Route Total								2E-06					4E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.5E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	9.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.9E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.4E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1260	4E-01	mg/kg	8.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.6E-09	6.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	1E-01	mg/kg	2.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.6E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Dioxin TEQ	4E-05	mg/kg	1.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.5.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.3E-07	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	1E+01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								2E-06					6E-03
		Exposure Point Total									5E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	7.5E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	2.0E-02	mg/kg-day	2.6E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	6.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.0E-08	4.4E-09	mg/kg-day	5.0E-05	mg/kg-day	8.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	4.3E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	1.0E-02	mg/kg-day	3.0E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	8.6E-10	mg/kg-day	N/A	N/A	N/A	6.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.4E-04
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	7.5E-05	mg/kg-day	9.6E-04

TABLE 7.5.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								1E-08					2E-03
		Exposure Point Total									1E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.4E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.7E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.2E-10	2.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	3E-01	mg/kg	3.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.2E-11	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.8E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	9.4E-10	mg/kg-day	N/A	N/A	N/A	6.6E-09	mg/kg-day	4.0E-03	mg/kg-day	1.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	8.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03
				Aroclor-1260	4E-01	mg/kg	3.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.9E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Dieldrin	7E-03	mg/kg	7.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-09	4.9E-10	mg/kg-day	5.0E-05	mg/kg-day	9.8E-06
				Aluminum	8E+03	mg/kg	8.1E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	1.0E+00	mg/kg-day	5.7E-04
				Antimony	2E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	9E+00	mg/kg	9.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	6.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	1.0E-03	mg/kg-day	1.3E-03
				Chromium	1E+02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	3.0E-03	mg/kg-day	3.0E-03
				Cobalt	6E+00	mg/kg	6.5E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.5E-03
				Copper	2E+02	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	2.9E-04
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.9E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	5E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	1.0E-04	mg/kg-day	3.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	7.0E-03	mg/kg-day	1.9E-04
			Exp. Route Total								9E-07					2E-02
			Dermal													

TABLE 7.5.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzo(a)anthracene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.2E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.9E-09	9.5E-07	mg/kg-day	2.0E-02	mg/kg-day	4.7E-05
				Carbazole	3E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.7E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.8E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	4.0E-03	mg/kg-day	7.5E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	7.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02
				Aroclor-1260	4E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03
				Dieldrin	7E-03	mg/kg	3.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.1E-09	2.2E-09	mg/kg-day	5.0E-05	mg/kg-day	4.5E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	2E+01	mg/kg	8.2E-09	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	2.5E-05	mg/kg-day	2.3E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-06					4E-02
		Exposure Point Total									6E-06					6E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.4E-10	8.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.5E-08	3.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Dieldrin	5E-01	mg/kg	3.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.9E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	4.4E-03	mg/kg-day	1.0E+00	mg/kg-day	4.4E-03
				Antimony	1E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	1E+01	mg/kg	9.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	6.7E-06	mg/kg-day	3.0E-04	mg/kg-day	2.2E-02
				Cadmium (other media)	4E+00	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	2E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	4E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Copper	1E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.9E-03
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	9.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.8E-05	mg/kg-day	N/A	N/A	N/A	2.7E-04	mg/kg-day	7.0E-02	mg/kg-day	3.8E-03
				Mercury (other media)	8E-01	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	1.0E-04	mg/kg-day	4.5E-03
				Thallium	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.3E-03
				Vanadium	3E+01	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-03	mg/kg-day	2.1E-03
				Zinc	1E+02	mg/kg	9.7E-06	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-01	mg/kg-day	2.3E-04
			Exp. Route Total								5E-06					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-06	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.5E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.0E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	1E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	3.0E-02	mg/kg-day	1.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.9E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Dieldrin	5E-01	mg/kg	1.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-07	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	8.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03
				Cadmium (other media)	4E+00	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	2.5E-05	mg/kg-day	3.6E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									7E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	6.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.6E-08	4.8E-05	mg/kg-day	2.0E-02	mg/kg-day	2.4E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	4.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.4E-09	2.8E-08	mg/kg-day	5.0E-04	mg/kg-day	5.7E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	2.1E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.9E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03
				Aluminum	2E+03	ug/L	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-02	mg/kg-day	4.5E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.1E-04
				Chromium	9E+00	ug/L	5.3E-08	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	7.5E-05	mg/kg-day	4.9E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	1.8E-04	mg/kg-day	5.0E-04
			Exp. Route Total								1E-07					1E-02
		Exposure Point Total									1E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.5E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-09	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.9E-04
				Carbazole	1E-01	mg/kg	5.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.5E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	3.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.0E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.8E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.4E-04
				Aroclor-1260	6E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.5E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-02	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-08	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.2E-04
				Aluminum	9E+03	mg/kg	3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	1.0E+00	mg/kg-day	2.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	3.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.5E-03

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	1E+01	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	2E+02	mg/kg	8.5E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	1E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	3.4E-03
				Mercury (other media)	4E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	6E-01	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	9.7E-07	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	7.0E-03	mg/kg-day	9.7E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.3E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	1.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-08	8.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.2E-04
				Carbazole	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.1E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-07	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.4E-08	3.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	7.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	6E-01	mg/kg	7.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-07	5.0E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	7E-02	mg/kg	6.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-07	4.8E-08	mg/kg-day	5.0E-05	mg/kg-day	9.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02
		Exposure Point Total									6E-06					1E-01

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.6.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.6E-09	9.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06
				Carbazole	1E-01	mg/kg	3.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.0E-11	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.1E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	3.0E-02	mg/kg-day	5.5E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	5E-01	mg/kg	9.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-07	6.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.3E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E+00	mg/kg-day	1.1E-03
				Antimony	1E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	4E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-03	mg/kg-day	5.5E-04
				Chromium	2E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	4E+00	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	6.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	1E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	4.0E-02	mg/kg-day	4.8E-04
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	2.3E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	6.7E-05	mg/kg-day	7.0E-02	mg/kg-day	9.5E-04
				Mercury (other media)	8E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	1.0E-04	mg/kg-day	1.1E-03
				Thallium	2E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	8.0E-05	mg/kg-day	3.2E-04
				Vanadium	3E+01	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	7.0E-03	mg/kg-day	5.2E-04
				Zinc	1E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.3E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.8E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-10	1.0E-07	mg/kg-day	2.0E-02	mg/kg-day	5.0E-06
				Carbazole	1E-01	mg/kg	3.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.4E-11	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-08	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	1.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.6.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	5.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Dieldrin	5E-01	mg/kg	7.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-07	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	5.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.9E-08	4.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	4E+00	mg/kg	6.4E-10	mg/kg-day	N/A	N/A	N/A	4.5E-09	mg/kg-day	2.5E-05	mg/kg-day	1.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-06					7E-03
		Exposure Point Total									2E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.6.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	9.2E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.2E-10	6.5E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	6.4E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.8E-09	4.5E-09	mg/kg-day	1.3E-05	mg/kg-day	3.5E-04
				Aluminum	7E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	1.0E-02	mg/kg-day	7.9E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	7.5E-05	mg/kg-day	9.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								3E-08					3E-03
		Exposure Point Total									3E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	6.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	6.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	3.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.2E-10	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	1E-01	mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.6E-11	9.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	7.5E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	5.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-09	mg/kg-day	4.0E-03	mg/kg-day	1.3E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.5E-09	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	3.0E-02	mg/kg-day	1.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-10	1.6E-09	mg/kg-day	2.0E-05	mg/kg-day	7.8E-05
				Aroclor-1260	2E-01	mg/kg	1.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.6E-04
				Dieldrin	3E-02	mg/kg	2.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.3E-09	1.9E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Aluminum	6E+03	mg/kg	6.1E-05	mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	1.0E+00	mg/kg-day	4.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	5.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.5E-08	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03

TABLE 7.6.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	7E+01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.6E-03
				Cobalt	6E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	9E+01	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	4.0E-02	mg/kg-day	1.5E-04
				Iron	1E+04	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	7.0E-01	mg/kg-day	1.1E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	2E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								3E-07					8E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.1E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.5E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.3E-05
				Carbazole	1E-01	mg/kg	7.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.7E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.0E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	8.5E-08	mg/kg-day	2.0E-05	mg/kg-day	4.2E-03
				Dieldrin	3E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	7.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	5E+00	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					8E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.6.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-08	6.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.5E-09	2.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.4E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.5E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	5.4E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.4E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.9E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Aroclor-1260	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.7E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	1E-01	mg/kg	9.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.6E-07	6.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.9E-06	8.8E-06	mg/kg-day	3.0E-04	mg/kg-day	2.9E-02
				Cadmium (other media)	9E+00	mg/kg	7.2E-07	mg/kg-day	N/A	N/A	N/A	5.1E-06	mg/kg-day	1.0E-03	mg/kg-day	5.1E-03
				Chromium	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03
				Iron	3E+04	mg/kg	2.1E-03	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	7.0E-01	mg/kg-day	2.1E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	5.5E-04	mg/kg-day	7.0E-02	mg/kg-day	7.8E-03
				Mercury (other media)	6E-01	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03
				Thallium	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	8.0E-05	mg/kg-day	1.3E-02
				Vanadium	3E+01	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-03	mg/kg-day	2.5E-03
				Zinc	3E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	3.0E-01	mg/kg-day	5.0E-04
			Exp. Route Total								7E-06					1E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05
				Carbazole	2E-01	mg/kg	9.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.9E-10	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.6E-06

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.3E-08	7.9E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Aroclor-1260	4E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Dieldrin	1E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.5E-08	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.3E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Cadmium (other media)	9E+00	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	6.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.6E-08	4.8E-05	mg/kg-day	2.0E-02	mg/kg-day	2.4E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	4.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.4E-09	2.8E-08	mg/kg-day	5.0E-04	mg/kg-day	5.7E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	2.1E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.9E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03
				Aluminum	2E+03	ug/L	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-02	mg/kg-day	4.5E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.1E-04
				Chromium	9E+00	ug/L	5.3E-08	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	7.5E-05	mg/kg-day	4.9E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	1.8E-04	mg/kg-day	5.0E-04
			Exp. Route Total								1E-07					1E-02
		Exposure Point Total									1E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.5E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-09	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.9E-04
				Carbazole	1E-01	mg/kg	5.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.5E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	3.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.0E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.8E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.4E-04
				Aroclor-1260	6E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.5E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-02	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-08	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.2E-04
				Aluminum	9E+03	mg/kg	3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	1.0E+00	mg/kg-day	2.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	9E+00	mg/kg	3.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.5E-03
				Cadmium (other media)	1E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	1E+01	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	2E+02	mg/kg	8.5E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	1E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	3.4E-03
				Mercury (other media)	4E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	6E-01	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	9.7E-07	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	7.0E-03	mg/kg-day	9.7E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.3E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	1.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-08	8.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.2E-04
				Carbazole	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.1E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-07	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.4E-08	3.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	7.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	6E-01	mg/kg	7.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-07	5.0E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	7E-02	mg/kg	6.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-07	4.8E-08	mg/kg-day	5.0E-05	mg/kg-day	9.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									6E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.7.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.5E-08	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.7E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.3E-10	2.2E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				Carbazole	2E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.7E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-07	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.1E-08	mg/kg-day	2.0E-05	mg/kg-day	5.6E-04
				Aroclor-1260	1E-01	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.7E-04
				Dieldrin	5E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	7.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.0E-03	mg/kg-day	1.0E+00	mg/kg-day	1.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				Cadmium (other media)	4E+00	mg/kg	7.1E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.4E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	4.0E-02	mg/kg-day	4.2E-04
				Iron	1E+04	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	7.0E-01	mg/kg-day	3.0E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.3E-04
				Mercury (other media)	3E-01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	1.0E-04	mg/kg-day	4.7E-04
				Thallium	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03
				Vanadium	2E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.4E-04
				Zinc	1E+02	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	3.0E-01	mg/kg-day	7.0E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.0E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	8.9E-06
				Carbazole	2E-01	mg/kg	4.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.3E-11	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-07	4.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.8E-06

TABLE 7.7.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.5E-04
				Aroclor-1260	1E-01	mg/kg	2.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.9E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03
				Dieldrin	5E-02	mg/kg	8.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-08	6.2E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.8E-08	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	4E+00	mg/kg	5.9E-10	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.7.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	9.2E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.2E-10	6.5E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	6.4E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.8E-09	4.5E-09	mg/kg-day	1.3E-05	mg/kg-day	3.5E-04
				Aluminum	7E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	1.0E-02	mg/kg-day	7.9E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	7.5E-05	mg/kg-day	9.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								3E-08					3E-03
		Exposure Point Total									3E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	6.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	6.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	3.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.2E-10	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	1E-01	mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.6E-11	9.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	7.5E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	5.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-09	mg/kg-day	4.0E-03	mg/kg-day	1.3E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.5E-09	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	3.0E-02	mg/kg-day	1.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-10	1.6E-09	mg/kg-day	2.0E-05	mg/kg-day	7.8E-05
				Aroclor-1260	2E-01	mg/kg	1.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.6E-04
				Dieldrin	3E-02	mg/kg	2.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.3E-09	1.9E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Aluminum	6E+03	mg/kg	6.1E-05	mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	1.0E+00	mg/kg-day	4.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.7.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	5.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.5E-08	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	7E+01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.6E-03
				Cobalt	6E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	9E+01	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	4.0E-02	mg/kg-day	1.5E-04
				Iron	1E+04	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	7.0E-01	mg/kg-day	1.1E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	2E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								3E-07					8E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.1E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.5E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.3E-05
				Carbazole	1E-01	mg/kg	7.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.7E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.0E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	8.5E-08	mg/kg-day	2.0E-05	mg/kg-day	4.2E-03
				Dieldrin	3E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	7.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	5E+00	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					8E-03

TABLE 7.7.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									1E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.8.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-08	9.1E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	5.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.8E-07	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				Iron	9E+03	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-01	mg/kg-day	7.7E-03
				Thallium	1E+00	mg/kg	8.0E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	8.0E-05	mg/kg-day	7.0E-03
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	4.9E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	7.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								2E-07					2E-03
		Exposure Point Total									1E-06					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	9.1E-06	mg/kg-day	2.0E-02	mg/kg-day	4.6E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.1E-09	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	1.9E-09	7.6E-09	mg/kg-day	6.0E-04	mg/kg-day	1.3E-05
				Arsenic	2E+00	ug/L	5.0E-09	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.5E-09	3.5E-08	mg/kg-day	3.0E-04	mg/kg-day	1.2E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	2.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.9E-05
				Iron	2E+03	ug/L	5.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	7.0E-01	mg/kg-day	5.0E-05
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								3E-08					7E-04
		Exposure Point Total									3E-08					7E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	6.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	5.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.5E-09	3.5E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	7.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.8.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	3.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.1E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03
				Aluminum	2E+04	mg/kg	7.0E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	1.0E+00	mg/kg-day	4.9E-03
				Antimony	1E+00	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	7.9E-04
				Arsenic	8E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.6E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.2E-03
				Chromium	5E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.2E-03
				Cobalt	1E+01	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Iron	3E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead												
				Manganese (other media)	6E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	7.0E-02	mg/kg-day	2.6E-03
				Thallium	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.3E-03
				Vanadium	4E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.5E-06	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.8E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-10	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.7E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	9.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.9E-08	6.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.4E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.2E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-06					8E-03
		Exposure Point Total									7E-06					6E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.8.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-08	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	3.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Iron	8E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03
				Thallium	7E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03
			Exp. Route Total								2E-07					5E-03
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	2.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-08	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	3.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.4E-07	mg/kg-day	3.0E-04	mg/kg-day	4.7E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								8E-08					5E-04
		Exposure Point Total									3E-07					5E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.1E-09	4.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.4E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	9.7E-10	3.8E-09	mg/kg-day	6.0E-04	mg/kg-day	6.3E-06
				Arsenic	2E+00	ug/L	2.5E-09	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.7E-09	1.7E-08	mg/kg-day	3.0E-04	mg/kg-day	5.8E-05
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	2.0E-02	mg/kg-day	5.0E-05
				Iron	2E+03	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-01	mg/kg-day	2.5E-05
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					4E-04
		Exposure Point Total									1E-08					4E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	8.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-09	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.5E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.8E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.8.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	7.6E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.6E-10	5.3E-09	mg/kg-day	2.0E-05	mg/kg-day	2.7E-04
				Aluminum	2E+04	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.2E-03	mg/kg-day	1.0E+00	mg/kg-day	1.2E-03
				Antimony	1E+00	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04
				Arsenic	8E+00	mg/kg	7.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Chromium	5E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.3E-03
				Cobalt	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Iron	3E+04	mg/kg	2.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.7E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	7.0E-02	mg/kg-day	6.4E-04
				Thallium	4E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	8.0E-05	mg/kg-day	3.3E-04
				Vanadium	4E+01	mg/kg	4.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04
			Exp. Route Total								5E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.4E-08	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	4.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.8E-09	3.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.4E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					4E-03
		Exposure Point Total									3E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
				Carbazole	2E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.5E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1248	6E+00	mg/kg	5.0E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-06	3.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.8E-01
				Aroclor-1254	5E-01	mg/kg	4.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.9E-08	3.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1260	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.2E-03
				Dieldrin	2E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.6E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.3E-04
				Dioxin TEQ	6E-05	mg/kg	4.8E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	6.2E-07	3.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	7.2E-04	mg/kg-day	N/A	N/A	N/A	5.1E-03	mg/kg-day	1.0E+00	mg/kg-day	5.1E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.9E-06	8.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.0E-02
				Cadmium (other media)	1E+01	mg/kg	8.9E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-03	mg/kg-day	6.2E-03
				Chromium	1E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.8E-03
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.8E-03
				Iron	3E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	5.6E-05	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03
				Mercury (other media)	5E-01	mg/kg	4.1E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	1E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	8.0E-05	mg/kg-day	7.9E-03
				Vanadium	3E+01	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	7.0E-03	mg/kg-day	2.4E-03
				Zinc	9E+02	mg/kg	7.4E-05	mg/kg-day	N/A	N/A	N/A	5.2E-04	mg/kg-day	3.0E-01	mg/kg-day	1.7E-03
			Exp. Route Total								1E-05					3E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.5E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	9.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.9E-10	6.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.5E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.0E-05
				Aroclor-1248	6E+00	mg/kg	2.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.8E-07	2.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.0E-01
				Aroclor-1254	5E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03
				Aroclor-1260	2E-01	mg/kg	8.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	6.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	2E-02	mg/kg	6.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-08	4.7E-09	mg/kg-day	5.0E-05	mg/kg-day	9.4E-05
				Dioxin TEQ	6E-05	mg/kg	6.0E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	7.7E-08	4.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.7E-03
				Cadmium (other media)	1E+01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					1E-01
		Exposure Point Total									1E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	1.6E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	8.8E-10	1.1E-06	mg/kg-day	7.0E-02	mg/kg-day	1.6E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	4.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.1E-08	3.1E-08	mg/kg-day	5.0E-05	mg/kg-day	6.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03
				Aluminum	2E+04	ug/L	5.2E-05	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	1.0E-02	mg/kg-day	3.7E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	2.5E-05	mg/kg-day	1.4E-02
				Chromium	2E+02	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	9.3E-06	mg/kg-day	7.5E-05	mg/kg-day	1.2E-01
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.8E-04	mg/kg-day	5.8E-03
			Exp. Route Total								1E-07					2E-01
		Exposure Point Total									1E-07					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	6.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	2E-01	mg/kg	9.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.0E-10	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	6.9E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05
				Aroclor-1242	2E-01	mg/kg	9.9E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	6.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1254	3E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	8.9E-08	mg/kg-day	2.0E-05	mg/kg-day	4.4E-03
				Aroclor-1260	1E-01	mg/kg	4.9E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.8E-09	3.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03
				Dieldrin	2E-02	mg/kg	6.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-08	4.8E-09	mg/kg-day	5.0E-05	mg/kg-day	9.5E-05
				Aluminum	9E+03	mg/kg	3.6E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	1.0E+00	mg/kg-day	2.5E-03
				Antimony	2E+00	mg/kg	7.5E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-04	mg/kg-day	1.3E-03
				Arsenic	4E+01	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.7E-02

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	4.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	1E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.3E-02
				Cobalt	5E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03
				Copper	2E+02	mg/kg	8.4E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	2E+04	mg/kg	9.0E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	7.0E-01	mg/kg-day	9.0E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.1E-03
				Mercury (other media)	3E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	1.0E-04	mg/kg-day	8.3E-04
				Thallium	7E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	8.6E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	7.0E-03	mg/kg-day	8.6E-04
			Exp. Route Total								4E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.6E-06	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	2.1E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.9E-08	1.4E-05	mg/kg-day	2.0E-02	mg/kg-day	7.2E-04
				Carbazole	2E-01	mg/kg	2.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.8E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05
				Aroclor-1242	2E-01	mg/kg	3.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.3E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1254	3E-01	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.1E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.1E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Dieldrin	2E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.2E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	7.6E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Cadmium (other media)	1E+01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-06					6E-02
		Exposure Point Total									1E-05					1E-01

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.9.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.3E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	6.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.5E-10	3.2E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05
				Carbazole	2E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.9E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	6.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.7E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	6E+00	mg/kg	1.3E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-07	8.8E-07	mg/kg-day	2.0E-05	mg/kg-day	4.4E-02
				Aroclor-1254	5E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Aroclor-1260	2E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.7E-09	2.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Dieldrin	2E-02	mg/kg	4.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.5E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.7E-05
				Dioxin TEQ	3E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	3.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.8E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.4E-03
				Cadmium (other media)	1E+01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	3.0E-03	mg/kg-day	5.9E-03
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	4.0E-02	mg/kg-day	7.1E-04
				Iron	3E+04	mg/kg	5.5E-04	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	9.8E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	5E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	1.0E-04	mg/kg-day	7.1E-04
				Thallium	1E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	8.0E-05	mg/kg-day	2.0E-03
				Vanadium	3E+01	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	4.2E-06	mg/kg-day	7.0E-03	mg/kg-day	5.9E-04
				Zinc	9E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-01	mg/kg-day	4.3E-04
			Exp. Route Total								2E-06					8E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.9E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.3E-10	2.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	2E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.5E-11	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	3.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.9.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.5E-05
				Aroclor-1248	6E+00	mg/kg	1.5E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.1E-02
				Aroclor-1254	5E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	9.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.5E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.3E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03
				Dieldrin	2E-02	mg/kg	3.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.4E-09	2.3E-09	mg/kg-day	5.0E-05	mg/kg-day	4.7E-05
				Dioxin TEQ	3E-05	mg/kg	1.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.1E-08	1.1E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	7.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.1E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					6E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	4.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	2.3E-10	3.0E-07	mg/kg-day	7.0E-02	mg/kg-day	4.2E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.9.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	2.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.5E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.2E-08	9.2E-09	mg/kg-day	1.3E-05	mg/kg-day	7.1E-04
				Aluminum	2E+04	ug/L	2.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	1.0E-02	mg/kg-day	1.8E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	7.0E-03
				Chromium	2E+02	ug/L	6.7E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	7.5E-05	mg/kg-day	6.2E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	7.6E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03
			Exp. Route Total								5E-08					9E-02
		Exposure Point Total									5E-08					9E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-08	9.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-09	5.4E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	2.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	7.9E-05
				Carbazole	2E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-11	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-08	1.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	4.0E-03	mg/kg-day	3.0E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	6.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	5.0E-06
				Aroclor-1242	2E-01	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.7E-04
				Aroclor-1254	3E-01	mg/kg	3.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-09	2.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03
				Aroclor-1260	1E-01	mg/kg	1.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-09	8.6E-09	mg/kg-day	2.0E-05	mg/kg-day	4.3E-04
				Dieldrin	2E-02	mg/kg	1.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-09	1.2E-09	mg/kg-day	5.0E-05	mg/kg-day	2.4E-05
				Aluminum	9E+03	mg/kg	8.9E-05	mg/kg-day	N/A	N/A	N/A	6.2E-04	mg/kg-day	1.0E+00	mg/kg-day	6.2E-04
				Antimony	2E+00	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-04	mg/kg-day	3.3E-04
				Arsenic	4E+01	mg/kg	3.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.9E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.2E-03

TABLE 7.9.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	1.0E-03	mg/kg-day	7.0E-04
				Chromium	1E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	3.0E-03	mg/kg-day	3.4E-03
				Cobalt	5E+00	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.7E-04
				Iron	2E+04	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	2.7E-04
				Mercury (other media)	3E-01	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.0E-04	mg/kg-day	2.1E-04
				Thallium	7E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	8.0E-05	mg/kg-day	6.3E-04
				Vanadium	2E+01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	7.0E-03	mg/kg-day	2.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	9.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-06	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.7E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-08	7.2E-06	mg/kg-day	2.0E-02	mg/kg-day	3.6E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.9E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-07	8.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	8.8E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1242	2E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1254	3E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				Aroclor-1260	1E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.8E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Dieldrin	2E-02	mg/kg	7.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-08	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	5.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.1E-07	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	1E+01	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					5E-02

TABLE 7.9.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.10.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-07	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.8E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.5E-09	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				Carbazole	3E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.4E-10	8.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	5.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.9E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	4.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	9.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	3.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.3E-09	2.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03
				Aroclor-1260	2E-01	mg/kg	6.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	4.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.3E-03
				Dieldrin	1E-02	mg/kg	5.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.7E-09	3.8E-09	mg/kg-day	5.0E-05	mg/kg-day	7.6E-05
				Aluminum	5E+03	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03
				Antimony	5E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-04	mg/kg-day	3.5E-04
				Arsenic	5E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03
				Cadmium (other media)	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	1.0E-03	mg/kg-day	9.6E-04
				Chromium	4E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	4.1E-03
				Cobalt	5E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Copper	5E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	3.9E-04
				Iron	9E+03	mg/kg	3.5E-04	mg/kg-day	N/A	N/A	N/A	2.4E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	1E-01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.0E-04	mg/kg-day	4.2E-04
				Thallium	3E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	8.0E-05	mg/kg-day	1.0E-03
				Vanadium	1E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	7.0E-03	mg/kg-day	4.4E-04
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	5.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.4E-09	1.7E-06	mg/kg-day	2.0E-02	mg/kg-day	8.4E-05
				Carbazole	3E-01	mg/kg	3.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.1E-10	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	6.8E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.10.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1254	8E-02	mg/kg	1.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.2E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03
				Dieldrin	1E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	8.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.1E-07	9.9E-07	mg/kg-day	3.0E-04	mg/kg-day	3.3E-03
				Cadmium (other media)	3E+00	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					2E-02
		Exposure Point Total									5E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.10.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	9.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	5.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.5E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06
				Carbazole	3E-01	mg/kg	3.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.0E-11	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-08	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.9E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	3.0E-02	mg/kg-day	5.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	7.8E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.8E-10	5.5E-09	mg/kg-day	2.0E-05	mg/kg-day	2.7E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.1E-08	mg/kg-day	2.0E-05	mg/kg-day	5.7E-04
				Dieldrin	1E-02	mg/kg	1.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.2E-09	9.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.9E-05
				Aluminum	5E+03	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	1.0E+00	mg/kg-day	3.3E-04
				Antimony	5E-01	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	4.0E-04	mg/kg-day	8.6E-05
				Arsenic	5E+00	mg/kg	5.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.8E-08	3.6E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	3E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-03	mg/kg-day	2.4E-04
				Chromium	4E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-03	mg/kg-day	1.0E-03
				Cobalt	5E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Copper	5E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	4.0E-02	mg/kg-day	9.8E-05
				Iron	9E+03	mg/kg	8.7E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	7.0E-01	mg/kg-day	8.7E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.8E-04
				Mercury (other media)	1E-01	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	3E-01	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	7.0E-03	mg/kg-day	1.1E-04
			Exp. Route Total								3E-07					7E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.6E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.4E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	3E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.6E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.10.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1254	8E-02	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03
				Aroclor-1260	2E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.6E-03
				Dieldrin	1E-02	mg/kg	6.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.9E-09	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.7E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	7.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-07	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Cadmium (other media)	3E+00	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					8E-03
		Exposure Point Total									2E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.11.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	5.5E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	6.0E-02	mg/kg-day	6.5E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	2.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.1E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	4.0E-03	mg/kg-day	3.0E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	2.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.4E-09	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	1.4E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.6E-09	1.0E-06	mg/kg-day	1.0E-01	mg/kg-day	1.0E-05
				Xylene (total)	3E+00	ug/L	4.1E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	2.0E-01	mg/kg-day	1.4E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	3.8E-10	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	2.4E-09	2.7E-09	mg/kg-day	8.0E-03	mg/kg-day	3.4E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-02	mg/kg-day	1.0E-04
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	6.4E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	7.5E-05	mg/kg-day	6.0E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.11.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-09					1E-03
		Exposure Point Total									9E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.11.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	6.0E-02	mg/kg-day	3.2E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	9.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.5E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	4.0E-03	mg/kg-day	1.5E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	2.0E-02	mg/kg-day	5.7E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	1.3E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	7.2E-10	9.3E-07	mg/kg-day	7.0E-02	mg/kg-day	1.3E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	7.2E-08	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	7.9E-10	5.0E-07	mg/kg-day	1.0E-01	mg/kg-day	5.0E-06
				Xylene (total)	3E+00	ug/L	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	2.0E-01	mg/kg-day	7.2E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	1.9E-10	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	1.2E-09	1.3E-09	mg/kg-day	8.0E-03	mg/kg-day	1.7E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	7.4E-08	mg/kg-day	N/A	N/A	N/A	5.2E-07	mg/kg-day	1.0E-02	mg/kg-day	5.2E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	7.5E-05	mg/kg-day	3.0E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.11.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-09					6E-04
		Exposure Point Total									5E-09					6E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	4E-03	ug/m^3	7.1E-06	ug/m3	1.6E-06	(ug/m3)$^{-1}$	1.1E-11	5.0E-05	ug/m3	5.0E+02	ug/m3	1.0E-07
				1,2,4-Trimethylbenzene	5E-02	ug/m^3	9.2E-05	ug/m3	N/A	N/A	N/A	6.4E-04	ug/m3	7.0E+00	ug/m3	9.2E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	7E-02	ug/m^3	1.2E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	5E-02	ug/m^3	8.8E-05	ug/m3	N/A	N/A	N/A	6.2E-04	ug/m3	2.0E+02	ug/m3	3.1E-06
				1,3,5-Trimethylbenzene	1E-02	ug/m^3	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+00	ug/m3	2.0E-05
				1,3-Dichlorobenzene	1E-01	ug/m^3	1.8E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	3E-01	ug/m^3	4.9E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	5.4E-09	3.4E-03	ug/m3	8.0E+02	ug/m3	4.3E-06
				4-Ethyltoluene	5E-02	ug/m^3	8.2E-05	ug/m3	N/A	N/A	N/A	5.8E-04	ug/m3	N/A	N/A	N/A
				Benzene	7E-01	ug/m^3	1.2E-03	ug/m3	7.8E-06	(ug/m3)$^{-1}$	9.5E-09	8.5E-03	ug/m3	3.0E+01	ug/m3	2.8E-04
				Carbon tetrachloride	2E-03	ug/m^3	3.6E-06	ug/m3	1.5E-05	(ug/m3)$^{-1}$	5.3E-11	2.5E-05	ug/m3	1.9E+02	ug/m3	1.3E-07
				Chlorobenzene	2E+00	ug/m^3	2.8E-03	ug/m3	N/A	N/A	N/A	2.0E-02	ug/m3	5.0E+01	ug/m3	3.9E-04
				cis-1,2-Dichloroethene	9E-03	ug/m^3	1.5E-05	ug/m3	N/A	N/A	N/A	1.0E-04	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	2E-02	ug/m^3	3.0E-05	ug/m3	N/A	N/A	N/A	2.1E-04	ug/m3	2.0E+02	ug/m3	1.0E-06
				Ethylbenzene	6E-01	ug/m^3	9.4E-04	ug/m3	2.5E-06	(ug/m3)$^{-1}$	2.3E-09	6.6E-03	ug/m3	1.0E+03	ug/m3	6.6E-06
				Methylene chloride	4E-03	ug/m^3	7.0E-06	ug/m3	4.7E-07	(ug/m3)$^{-1}$	3.3E-12	4.9E-05	ug/m3	1.1E+03	ug/m3	4.5E-08
				trans-1,2-Dichloroethene	1E-02	ug/m^3	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+01	ug/m3	2.0E-06
				Trichloroethene	2E-02	ug/m^3	3.9E-05	ug/m3	2.0E-06	(ug/m3)$^{-1}$	7.9E-11	2.8E-04	ug/m3	1.0E+01	ug/m3	2.8E-05
				Vinyl Chloride	9E-02	ug/m^3	1.5E-04	ug/m3	4.4E-06	(ug/m3)$^{-1}$	6.6E-10	1.0E-03	ug/m3	1.0E+02	ug/m3	1.0E-05
				Xylene (Total)	3E-01	ug/m^3	5.2E-04	ug/m3	N/A	N/A	N/A	3.7E-03	ug/m3	1.0E+02	ug/m3	3.7E-05
			Exp. Route Total								2E-08					9E-04
		Exposure Point Total									2E-08					9E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.12.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	3E-03	ug/m^3	2.5E-06	ug/m3	1.6E-06	(ug/m3)$^{-1}$	4.0E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08
				1,2,4-Trimethylbenzene	4E-02	ug/m^3	3.2E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	5E-02	ug/m^3	4.3E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	4E-02	ug/m^3	3.1E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06
				1,3,5-Trimethylbenzene	7E-03	ug/m^3	5.9E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06
				1,3-Dichlorobenzene	7E-02	ug/m^3	6.2E-05	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	2E-01	ug/m^3	1.7E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.9E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06
				4-Ethyltoluene	3E-02	ug/m^3	2.9E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A
				Benzene	5E-01	ug/m^3	4.3E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.3E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05
				Carbon tetrachloride	1E-03	ug/m^3	1.2E-06	ug/m3	1.5E-05	(ug/m3)$^{-1}$	1.9E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08
				Chlorobenzene	1E+00	ug/m^3	9.8E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04
				cis-1,2-Dichloroethene	6E-03	ug/m^3	5.2E-06	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	1E-02	ug/m^3	1.0E-05	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07
				Ethylbenzene	4E-01	ug/m^3	3.3E-04	ug/m3	2.5E-06	(ug/m3)$^{-1}$	8.2E-10	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06
				Methylene chloride	3E-03	ug/m^3	2.5E-06	ug/m3	4.7E-07	(ug/m3)$^{-1}$	1.2E-12	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08
				trans-1,2-Dichloroethene	7E-03	ug/m^3	5.9E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07
				Trichloroethene	2E-02	ug/m^3	1.4E-05	ug/m3	2.0E-06	(ug/m3)$^{-1}$	2.8E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06
				Vinyl Chloride	6E-02	ug/m^3	5.2E-05	ug/m3	4.4E-06	(ug/m3)$^{-1}$	2.3E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06
				Xylene (Total)	2E-01	ug/m^3	1.8E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05
			Exp. Route Total								6E-09					3E-04
		Exposure Point Total									6E-09					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	4E-03	ug/m^3	2.1E-04	ug/m3	1.6E-06	(ug/m3)$^{-1}$	3.3E-10	5.8E-04	ug/m3	5.0E+02	ug/m3	1.2E-06
				1,2,4-Trimethylbenzene	5E-02	ug/m^3	2.6E-03	ug/m3	N/A	N/A	N/A	7.4E-03	ug/m3	7.0E+00	ug/m3	1.1E-03
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	7E-02	ug/m^3	3.5E-03	ug/m3	N/A	N/A	N/A	9.8E-03	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	5E-02	ug/m^3	2.5E-03	ug/m3	N/A	N/A	N/A	7.1E-03	ug/m3	2.0E+02	ug/m3	3.6E-05
				1,3,5-Trimethylbenzene	1E-02	ug/m^3	4.9E-04	ug/m3	N/A	N/A	N/A	1.4E-03	ug/m3	6.0E+00	ug/m3	2.3E-04
				1,3-Dichlorobenzene	1E-01	ug/m^3	5.1E-03	ug/m3	N/A	N/A	N/A	1.4E-02	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	3E-01	ug/m^3	1.4E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.5E-07	3.9E-02	ug/m3	8.0E+02	ug/m3	4.9E-05
				4-Ethyltoluene	5E-02	ug/m^3	2.4E-03	ug/m3	N/A	N/A	N/A	6.7E-03	ug/m3	N/A	N/A	N/A
				Benzene	7E-01	ug/m^3	3.5E-02	ug/m3	7.8E-06	(ug/m3)$^{-1}$	2.7E-07	9.8E-02	ug/m3	3.0E+01	ug/m3	3.3E-03
				Carbon tetrachloride	2E-03	ug/m^3	1.0E-04	ug/m3	1.5E-05	(ug/m3)$^{-1}$	1.5E-09	2.9E-04	ug/m3	1.9E+02	ug/m3	1.5E-06
				Chlorobenzene	2E+00	ug/m^3	8.1E-02	ug/m3	N/A	N/A	N/A	2.3E-01	ug/m3	5.0E+01	ug/m3	4.5E-03
				cis-1,2-Dichloroethene	9E-03	ug/m^3	4.3E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	2E-02	ug/m^3	8.7E-04	ug/m3	N/A	N/A	N/A	2.4E-03	ug/m3	2.0E+02	ug/m3	1.2E-05
				Ethylbenzene	6E-01	ug/m^3	2.7E-02	ug/m3	2.5E-06	(ug/m3)$^{-1}$	6.8E-08	7.6E-02	ug/m3	1.0E+03	ug/m3	7.6E-05
				Methylene chloride	4E-03	ug/m^3	2.0E-04	ug/m3	4.7E-07	(ug/m3)$^{-1}$	9.5E-11	5.7E-04	ug/m3	1.1E+03	ug/m3	5.2E-07
				trans-1,2-Dichloroethene	1E-02	ug/m^3	4.9E-04	ug/m3	N/A	N/A	N/A	1.4E-03	ug/m3	6.0E+01	ug/m3	2.3E-05
				Trichloroethene	2E-02	ug/m^3	1.1E-03	ug/m3	2.0E-06	(ug/m3)$^{-1}$	2.3E-09	3.2E-03	ug/m3	1.0E+01	ug/m3	3.2E-04
				Vinyl Chloride	9E-02	ug/m^3	4.3E-03	ug/m3	4.4E-06	(ug/m3)$^{-1}$	1.9E-08	1.2E-02	ug/m3	1.0E+02	ug/m3	1.2E-04
				Xylene (Total)	3E-01	ug/m^3	1.5E-02	ug/m3	N/A	N/A	N/A	4.2E-02	ug/m3	1.0E+02	ug/m3	4.2E-04
			Exp. Route Total								5E-07					1E-02
		Exposure Point Total									5E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.13.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	3E-03	ug/m^3	5.1E-05	ug/m3	1.6E-06	(ug/m3)$^{-1}$	8.2E-11	4.0E-04	ug/m3	5.0E+02	ug/m3	8.0E-07
				1,2,4-Trimethylbenzene	4E-02	ug/m^3	6.7E-04	ug/m3	N/A	N/A	N/A	5.2E-03	ug/m3	7.0E+00	ug/m3	7.4E-04
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	5E-02	ug/m^3	8.9E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	4E-02	ug/m^3	6.4E-04	ug/m3	N/A	N/A	N/A	5.0E-03	ug/m3	2.0E+02	ug/m3	2.5E-05
				1,3,5-Trimethylbenzene	7E-03	ug/m^3	1.2E-04	ug/m3	N/A	N/A	N/A	9.5E-04	ug/m3	6.0E+00	ug/m3	1.6E-04
				1,3-Dichlorobenzene	7E-02	ug/m^3	1.3E-03	ug/m3	N/A	N/A	N/A	1.0E-02	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	2E-01	ug/m^3	3.5E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	3.9E-08	2.8E-02	ug/m3	8.0E+02	ug/m3	3.4E-05
				4-Ethyltoluene	3E-02	ug/m^3	6.0E-04	ug/m3	N/A	N/A	N/A	4.7E-03	ug/m3	N/A	N/A	N/A
				Benzene	5E-01	ug/m^3	8.9E-03	ug/m3	7.8E-06	(ug/m3)$^{-1}$	6.9E-08	6.9E-02	ug/m3	3.0E+01	ug/m3	2.3E-03
				Carbon tetrachloride	1E-03	ug/m^3	2.6E-05	ug/m3	1.5E-05	(ug/m3)$^{-1}$	3.9E-10	2.0E-04	ug/m3	1.9E+02	ug/m3	1.1E-06
				Chlorobenzene	1E+00	ug/m^3	2.0E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+01	ug/m3	3.2E-03
				cis-1,2-Dichloroethene	6E-03	ug/m^3	1.1E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	1E-02	ug/m^3	2.2E-04	ug/m3	N/A	N/A	N/A	1.7E-03	ug/m3	2.0E+02	ug/m3	8.5E-06
				Ethylbenzene	4E-01	ug/m^3	6.8E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.7E-08	5.3E-02	ug/m3	1.0E+03	ug/m3	5.3E-05
				Methylene chloride	3E-03	ug/m^3	5.1E-05	ug/m3	4.7E-07	(ug/m3)$^{-1}$	2.4E-11	4.0E-04	ug/m3	1.1E+03	ug/m3	3.6E-07
				trans-1,2-Dichloroethene	7E-03	ug/m^3	1.2E-04	ug/m3	N/A	N/A	N/A	9.5E-04	ug/m3	6.0E+01	ug/m3	1.6E-05
				Trichloroethene	2E-02	ug/m^3	2.9E-04	ug/m3	2.0E-06	(ug/m3)$^{-1}$	5.7E-10	2.2E-03	ug/m3	1.0E+01	ug/m3	2.2E-04
				Vinyl Chloride	6E-02	ug/m^3	1.1E-03	ug/m3	4.4E-06	(ug/m3)$^{-1}$	4.8E-09	8.5E-03	ug/m3	1.0E+02	ug/m3	8.5E-05
				Xylene (Total)	2E-01	ug/m^3	3.8E-03	ug/m3	N/A	N/A	N/A	3.0E-02	ug/m3	1.0E+02	ug/m3	3.0E-04
			Exp. Route Total								1E-07					7E-03
		Exposure Point Total									1E-07					7E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.14.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion													
				4-Chloro-3-methylphenol	2E-01	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	7.0E-01	mg/kg-day	6.6E-05
				4-Nitrophenol	1E+00	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-01	mg/kg-day	5.7E-04
				Benzo(a)anthracene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	6.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.5E-06	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	7.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.0E-05	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	1.9E-08	5.9E-05	mg/kg-day	2.0E-01	mg/kg-day	2.9E-04
				Total PCB Homologs	6E-01	mg/kg	4.1E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.2E-05	1.2E-04	mg/kg-day	2.0E-05	mg/kg-day	6.0E+00
				4,4'-DDD	1E-02	mg/kg	7.3E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.8E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.2E-06	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.1E-07	3.6E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	1.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.4E-08	3.8E-07	mg/kg-day	5.0E-04	mg/kg-day	7.6E-04
				Aldrin	9E-04	mg/kg	6.4E-08	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	1.1E-06	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	6.2E-03
				alpha-Chlordane	7E-03	mg/kg	4.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-07	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03
				Dieldrin	1E-02	mg/kg	9.4E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-05	2.7E-06	mg/kg-day	5.0E-05	mg/kg-day	5.5E-02
				Endosulfan I	1E-03	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	6.0E-03	mg/kg-day	3.5E-05
				Endosulfan II	3E-04	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	6.0E-03	mg/kg-day	1.1E-05
				Endosulfan Sulfate	5E-03	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.2E-07	mg/kg-day	6.0E-03	mg/kg-day	1.5E-04
				Gamma-Chlordane	4E-03	mg/kg	2.6E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	9.1E-08	7.6E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Heptachlor	2E-03	mg/kg	1.6E-07	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	7.4E-07	4.8E-07	mg/kg-day	5.0E-04	mg/kg-day	9.6E-04
				Heptachlor Epoxide	4E-04	mg/kg	2.7E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.5E-07	8.0E-08	mg/kg-day	1.3E-05	mg/kg-day	6.2E-03
				Arsenic	4E-02	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-06	8.0E-06	mg/kg-day	3.0E-04	mg/kg-day	2.7E-02
				Cadmium (other media)	2E-02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03
				Chromium	3E+00	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	3.0E-03	mg/kg-day	1.9E-01
				Cobalt	3E-02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	4E+01	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.3E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead	3E-02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	6.9E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-04	mg/kg-day	2.0E-01
				Nickel	1E+00	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Selenium	5E-01	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	5.0E-03	mg/kg-day	2.0E-02
			Exp. Route Total								1E-04					7E+00
		Exposure Point Total									1E-04					7E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.14.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion													
				4-Chloro-3-methylphenol	2E-01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-01	mg/kg-day	2.7E-05
				4-Nitrophenol	6E-01	mg/kg	7.8E-06	mg/kg-day	N/A	N/A	N/A	7.8E-05	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	1.0E-01	mg/kg-day	3.6E-04
				Benzo(a)anthracene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.0E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.7E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.6E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	3.7E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	3.5E-09	3.7E-05	mg/kg-day	2.0E-01	mg/kg-day	1.9E-04
				Total PCB Homologs	6E-01	mg/kg	7.6E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-05	7.6E-05	mg/kg-day	2.0E-05	mg/kg-day	3.8E+00
				4,4'-DDD	1E-02	mg/kg	1.4E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	2.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	7.7E-08	2.3E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	2.4E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	8.2E-09	2.4E-07	mg/kg-day	5.0E-04	mg/kg-day	4.8E-04
				Aldrin	2E-04	mg/kg	2.2E-09	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	3.7E-08	2.2E-08	mg/kg-day	3.0E-05	mg/kg-day	7.2E-04
				alpha-Chlordane	7E-03	mg/kg	8.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.1E-08	8.8E-07	mg/kg-day	5.0E-04	mg/kg-day	1.8E-03
				Dieldrin	1E-02	mg/kg	1.7E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.8E-06	1.7E-06	mg/kg-day	5.0E-05	mg/kg-day	3.5E-02
				Endosulfan I	1E-03	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	6.0E-03	mg/kg-day	2.2E-05
				Endosulfan II	3E-04	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	6.0E-03	mg/kg-day	7.1E-06
				Endosulfan Sulfate	5E-03	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	6.0E-03	mg/kg-day	9.8E-05
				Gamma-Chlordane	4E-03	mg/kg	4.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-08	4.8E-07	mg/kg-day	5.0E-04	mg/kg-day	9.7E-04
				Heptachlor	2E-04	mg/kg	2.5E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.1E-08	2.5E-08	mg/kg-day	5.0E-04	mg/kg-day	5.1E-05
				Heptachlor Epoxide	4E-04	mg/kg	5.1E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.6E-08	5.1E-08	mg/kg-day	1.3E-05	mg/kg-day	3.9E-03
				Arsenic	4E-02	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.6E-07	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	2E-02	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	1.0E-03	mg/kg-day	2.5E-03
				Chromium	3E+00	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01
				Cobalt	3E-02	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Iron	4E+01	mg/kg	5.3E-04	mg/kg-day	N/A	N/A	N/A	5.3E-03	mg/kg-day	7.0E-01	mg/kg-day	7.6E-03
				Lead	3E-02	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	1.0E-04	mg/kg-day	1.3E-01
				Nickel	1E+00	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	8.9E-03
				Selenium	5E-01	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	5.0E-03	mg/kg-day	1.3E-02
			Exp. Route Total								2E-05					4E+00
		Exposure Point Total									2E-05					4E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.15.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion													
				4-Chloro-3-methylphenol	2E-01	mg/kg	8.0E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04
				4-Nitrophenol	1E+00	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	1.0E-01	mg/kg-day	1.2E-03
				Benzo(a)anthracene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	3.1E-07	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1.2E-05	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	3.3E-07	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1.3E-05	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	3.6E-07	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.4E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	1.0E-05	mg/kg-day	9.5E-04	$(mg/kg\text{-}day)^{-1}$	9.7E-09	1.2E-04	mg/kg-day	2.0E-01	mg/kg-day	6.0E-04
				Total PCB Homologs	6E-01	mg/kg	2.1E-05	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	4.2E-05	2.4E-04	mg/kg-day	2.0E-05	mg/kg-day	1.2E+01
				4,4'-DDD	1E-02	mg/kg	3.7E-07	mg/kg-day	2.4E-01	$(mg/kg\text{-}day)^{-1}$	9.0E-08	4.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	6.2E-07	mg/kg-day	3.4E-01	$(mg/kg\text{-}day)^{-1}$	2.1E-07	7.2E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	6.6E-08	mg/kg-day	3.4E-01	$(mg/kg\text{-}day)^{-1}$	2.3E-08	7.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Aldrin	9E-04	mg/kg	3.2E-08	mg/kg-day	1.7E+01	$(mg/kg\text{-}day)^{-1}$	5.5E-07	3.8E-07	mg/kg-day	3.0E-05	mg/kg-day	1.3E-02
				alpha-Chlordane	7E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	$(mg/kg\text{-}day)^{-1}$	8.4E-08	2.8E-06	mg/kg-day	5.0E-04	mg/kg-day	5.6E-03
				Dieldrin	1E-02	mg/kg	4.8E-07	mg/kg-day	1.6E+01	$(mg/kg\text{-}day)^{-1}$	7.6E-06	5.6E-06	mg/kg-day	5.0E-05	mg/kg-day	1.1E-01
				Endosulfan I	1E-03	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	6.0E-03	mg/kg-day	7.2E-05
				Endosulfan II	3E-04	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	6.0E-03	mg/kg-day	2.3E-05
				Endosulfan Sulfate	5E-03	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	6.0E-03	mg/kg-day	3.1E-04
				Gamma-Chlordane	4E-03	mg/kg	1.3E-07	mg/kg-day	3.5E-01	$(mg/kg\text{-}day)^{-1}$	4.6E-08	1.5E-06	mg/kg-day	5.0E-04	mg/kg-day	3.1E-03
				Heptachlor	2E-03	mg/kg	8.4E-08	mg/kg-day	4.5E+00	$(mg/kg\text{-}day)^{-1}$	3.8E-07	9.8E-07	mg/kg-day	5.0E-04	mg/kg-day	2.0E-03
				Heptachlor Epoxide	4E-04	mg/kg	1.4E-08	mg/kg-day	9.1E+00	$(mg/kg\text{-}day)^{-1}$	1.3E-07	1.6E-07	mg/kg-day	1.3E-05	mg/kg-day	1.3E-02
				Arsenic	4E-02	mg/kg	1.4E-06	mg/kg-day	1.5E+00	$(mg/kg\text{-}day)^{-1}$	2.1E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.4E-02
				Cadmium (other media)	2E-02	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	8.1E-06	mg/kg-day	1.0E-03	mg/kg-day	8.1E-03
				Chromium	3E+00	mg/kg	9.8E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	3.0E-03	mg/kg-day	3.8E-01
				Cobalt	3E-02	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	4.1E-02
				Iron	4E+01	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead	3E-02	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-04	mg/kg-day	4.1E-01
				Nickel	1E+00	mg/kg	4.9E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	2.0E-02	mg/kg-day	2.8E-02
				Selenium	5E-01	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	5.0E-03	mg/kg-day	4.1E-02
			Exp. Route Total								8E-05					1E+01
		Exposure Point Total									8E-05					1E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.15.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.15.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion													
				4-Chloro-3-methylphenol	2E-01	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-01	mg/kg-day	5.3E-05
				4-Nitrophenol	6E-01	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	7.1E-05	mg/kg-day	1.0E-01	mg/kg-day	7.1E-04
				Benzo(a)anthracene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	6.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-06	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.1E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	2.0E-09	7.2E-05	mg/kg-day	2.0E-01	mg/kg-day	3.6E-04
				Total PCB Homologs	6E-01	mg/kg	4.2E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.5E-06	1.5E-04	mg/kg-day	2.0E-05	mg/kg-day	7.4E+00
				4,4'-DDD	1E-02	mg/kg	7.5E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.8E-08	2.6E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.3E-08	4.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	1.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.6E-09	4.7E-07	mg/kg-day	5.0E-04	mg/kg-day	9.4E-04
				Aldrin	2E-04	mg/kg	1.2E-09	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	2.0E-08	4.2E-08	mg/kg-day	3.0E-05	mg/kg-day	1.4E-03
				alpha-Chlordane	7E-03	mg/kg	4.9E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.4E-03
				Dieldrin	1E-02	mg/kg	9.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-06	3.4E-06	mg/kg-day	5.0E-05	mg/kg-day	6.8E-02
				Endosulfan I	1E-03	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	6.0E-03	mg/kg-day	4.4E-05
				Endosulfan II	3E-04	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	6.0E-03	mg/kg-day	1.4E-05
				Endosulfan Sulfate	5E-03	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	6.0E-03	mg/kg-day	1.9E-04
				Gamma-Chlordane	4E-03	mg/kg	2.7E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	9.4E-09	9.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
				Heptachlor	2E-04	mg/kg	1.4E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	6.3E-09	4.9E-08	mg/kg-day	5.0E-04	mg/kg-day	9.9E-05
				Heptachlor Epoxide	4E-04	mg/kg	2.8E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.6E-08	9.9E-08	mg/kg-day	1.3E-05	mg/kg-day	7.6E-03
				Arsenic	4E-02	mg/kg	2.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.2E-07	9.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.3E-02
				Cadmium (other media)	2E-02	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	1.0E-03	mg/kg-day	4.9E-03
				Chromium	3E+00	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	6.9E-04	mg/kg-day	3.0E-03	mg/kg-day	2.3E-01
				Cobalt	3E-02	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Iron	4E+01	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead	3E-02	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	1.0E-04	mg/kg-day	2.5E-01
				Nickel	1E+00	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Selenium	5E-01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	5.0E-03	mg/kg-day	2.5E-02
			Exp. Route Total								2E-05					8E+00
		Exposure Point Total									2E-05					8E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.15.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.16.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-01	mg/kg-day	2.2E-04
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-06	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.0E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-07	3.0E-05	mg/kg-day	2.0E-02	mg/kg-day	1.5E-03
				Dibenz(a,h)anthracene	1E-02	mg/kg	6.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.9E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	1E-01	mg/kg	9.9E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	9.4E-09	2.9E-05	mg/kg-day	2.0E-01	mg/kg-day	1.4E-04
				Total PCB Homologs	5E-01	mg/kg	3.2E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.3E-05	9.2E-05	mg/kg-day	2.0E-05	mg/kg-day	4.6E+00
				4,4'-DDD	6E-03	mg/kg	3.9E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	9.3E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.3E-06	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.5E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	9E-03	mg/kg	5.9E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.5E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	5E-03	mg/kg	3.3E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.2E-07	9.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
				Dieldrin	1E-02	mg/kg	6.7E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-05	1.9E-06	mg/kg-day	5.0E-05	mg/kg-day	3.9E-02
				Endosulfan I	3E-03	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.3E-07	mg/kg-day	6.0E-03	mg/kg-day	1.1E-04
				Endosulfan II	5E-04	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	6.0E-03	mg/kg-day	1.7E-05
				Endosulfan Sulfate	3E-03	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	6.0E-03	mg/kg-day	1.0E-04
				Gamma-Chlordane	3E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	8.3E-08	6.9E-07	mg/kg-day	5.0E-04	mg/kg-day	1.4E-03
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	mg/kg	1.3E-07	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.2E-06	3.7E-07	mg/kg-day	1.3E-05	mg/kg-day	2.9E-02
				Arsenic	8E-02	mg/kg	5.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.7E-06	1.7E-05	mg/kg-day	3.0E-04	mg/kg-day	5.7E-02
				Cadmium (other media)	2E-02	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-03	mg/kg-day	4.8E-03
				Chromium	2E+00	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	3.0E-03	mg/kg-day	1.6E-01
				Cobalt	1E-02	mg/kg	9.9E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.7E-03
				Iron	2E+01	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	4.0E-03	mg/kg-day	7.0E-01	mg/kg-day	5.6E-03
				Lead	3E-02	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	9.1E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-04	mg/kg-day	2.7E-01
				Nickel	1E+00	mg/kg	8.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02
				Selenium	6E-01	mg/kg	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	5.0E-03	mg/kg-day	2.6E-02
			Exp. Route Total								9E-05					5E+00
		Exposure Point Total									9E-05					5E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.16.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-01	mg/kg-day	1.4E-04
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-08	1.9E-05	mg/kg-day	2.0E-02	mg/kg-day	9.5E-04
				Dibenz(a,h)anthracene	1E-02	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.0E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	1E-01	mg/kg	1.8E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	1.7E-09	1.8E-05	mg/kg-day	2.0E-01	mg/kg-day	9.2E-05
				Total PCB Homologs	5E-01	mg/kg	5.9E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.2E-05	5.9E-05	mg/kg-day	2.0E-05	mg/kg-day	2.9E+00
				4,4'-DDD	6E-03	mg/kg	7.2E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.7E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	2.5E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	8.4E-08	2.5E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	9E-03	mg/kg	1.1E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	3.7E-08	1.1E-06	mg/kg-day	5.0E-04	mg/kg-day	2.2E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	5E-03	mg/kg	6.1E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.1E-08	6.1E-07	mg/kg-day	5.0E-04	mg/kg-day	1.2E-03
				Dieldrin	1E-02	mg/kg	1.2E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-06	1.2E-06	mg/kg-day	5.0E-05	mg/kg-day	2.5E-02
				Endosulfan I	3E-03	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	6.0E-03	mg/kg-day	6.7E-05
				Endosulfan II	2E-04	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	6.0E-03	mg/kg-day	3.8E-06
				Endosulfan Sulfate	3E-03	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	6.0E-03	mg/kg-day	6.4E-05
				Gamma-Chlordane	3E-03	mg/kg	4.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.5E-08	4.4E-07	mg/kg-day	5.0E-04	mg/kg-day	8.8E-04
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	mg/kg	2.4E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.1E-07	2.4E-07	mg/kg-day	1.3E-05	mg/kg-day	1.8E-02
				Arsenic	8E-02	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.6E-02
				Cadmium (other media)	2E-02	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	1.0E-03	mg/kg-day	3.0E-03
				Chromium	2E+00	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	3.0E-03	mg/kg-day	1.0E-01
				Cobalt	1E-02	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Iron	2E+01	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.6E-03
				Lead	3E-02	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-04	mg/kg-day	1.7E-01
				Nickel	1E+00	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.4E-03
				Selenium	6E-01	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	8.2E-05	mg/kg-day	5.0E-03	mg/kg-day	1.6E-02
			Exp. Route Total								2E-05					3E+00
		Exposure Point Total									2E-05					3E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.17.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	4.4E-05	mg/kg-day	1.0E-01	mg/kg-day	4.4E-04
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-05	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	5.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.3E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.0E-03
				Dibenz(a,h)anthracene	1E-02	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-05	4.0E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	1E-01	mg/kg	5.0E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	4.8E-09	5.9E-05	mg/kg-day	2.0E-01	mg/kg-day	2.9E-04
				Total PCB Homologs	5E-01	mg/kg	1.6E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.2E-05	1.9E-04	mg/kg-day	2.0E-05	mg/kg-day	9.4E+00
				4,4'-DDD	6E-03	mg/kg	2.0E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.3E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	6.8E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.3E-07	7.9E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	9E-03	mg/kg	3.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.0E-07	3.5E-06	mg/kg-day	5.0E-04	mg/kg-day	7.0E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	5E-03	mg/kg	1.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	5.9E-08	2.0E-06	mg/kg-day	5.0E-04	mg/kg-day	3.9E-03
				Dieldrin	1E-02	mg/kg	3.4E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.4E-06	4.0E-06	mg/kg-day	5.0E-05	mg/kg-day	7.9E-02
				Endosulfan I	3E-03	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04
				Endosulfan II	5E-04	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	6.0E-03	mg/kg-day	3.5E-05
				Endosulfan Sulfate	3E-03	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04
				Gamma-Chlordane	3E-03	mg/kg	1.2E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	4.2E-08	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	mg/kg	6.5E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.9E-07	7.5E-07	mg/kg-day	1.3E-05	mg/kg-day	5.8E-02
				Arsenic	8E-02	mg/kg	3.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.4E-06	3.5E-05	mg/kg-day	3.0E-04	mg/kg-day	1.2E-01
				Cadmium (other media)	2E-02	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	1.0E-03	mg/kg-day	9.7E-03
				Chromium	2E+00	mg/kg	8.3E-05	mg/kg-day	N/A	N/A	N/A	9.6E-04	mg/kg-day	3.0E-03	mg/kg-day	3.2E-01
				Cobalt	1E-02	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	2E+01	mg/kg	6.9E-04	mg/kg-day	N/A	N/A	N/A	8.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead	3E-02	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	1.0E-04	mg/kg-day	5.4E-01
				Nickel	1E+00	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	2.0E-02	mg/kg-day	2.4E-02
				Selenium	6E-01	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	5.0E-03	mg/kg-day	5.3E-02
			Exp. Route Total								7E-05					1E+01
		Exposure Point Total									7E-05					1E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.17.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.17.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-01	mg/kg-day	2.7E-04
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.5E-08	3.7E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03
				Dibenz(a,h)anthracene	1E-02	mg/kg	6.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	1E-01	mg/kg	1.0E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	9.6E-10	3.6E-05	mg/kg-day	2.0E-01	mg/kg-day	1.8E-04
				Total PCB Homologs	5E-01	mg/kg	3.3E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.5E-06	1.1E-04	mg/kg-day	2.0E-05	mg/kg-day	5.7E+00
				4,4'-DDD	6E-03	mg/kg	4.0E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	9.6E-09	1.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.4E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.6E-08	4.8E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	9E-03	mg/kg	6.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.1E-08	2.1E-06	mg/kg-day	5.0E-04	mg/kg-day	4.3E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	5E-03	mg/kg	3.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.2E-08	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.4E-03
				Dieldrin	1E-02	mg/kg	6.9E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-06	2.4E-06	mg/kg-day	5.0E-05	mg/kg-day	4.8E-02
				Endosulfan I	3E-03	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	6.0E-03	mg/kg-day	1.3E-04
				Endosulfan II	2E-04	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	6.0E-03	mg/kg-day	7.4E-06
				Endosulfan Sulfate	3E-03	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	6.0E-03	mg/kg-day	1.2E-04
				Gamma-Chlordane	3E-03	mg/kg	2.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	8.5E-09	8.5E-07	mg/kg-day	5.0E-04	mg/kg-day	1.7E-03
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	mg/kg	1.3E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.2E-07	4.6E-07	mg/kg-day	1.3E-05	mg/kg-day	3.5E-02
				Arsenic	8E-02	mg/kg	6.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.0E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02
				Cadmium (other media)	2E-02	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	1.0E-03	mg/kg-day	5.9E-03
				Chromium	2E+00	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.8E-04	mg/kg-day	3.0E-03	mg/kg-day	1.9E-01
				Cobalt	1E-02	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Iron	2E+01	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	7.0E-01	mg/kg-day	7.0E-03
				Lead	3E-02	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	1.0E-04	mg/kg-day	3.3E-01
				Nickel	1E+00	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	2.9E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Selenium	6E-01	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	5.0E-03	mg/kg-day	3.2E-02
			Exp. Route Total								1E-05					6E+00
		Exposure Point Total									1E-05					6E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.17.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.18.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	2.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	1.9E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-05	5.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	6.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-07	5.1E-05	mg/kg-day	2.0E-02	mg/kg-day	2.6E-03
				Dibenz(a,h)anthracene	8E-03	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	8E-03	mg/kg	5.4E-07	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	8.7E-07	1.6E-06	mg/kg-day	8.0E-04	mg/kg-day	2.0E-03
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	8.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-07	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.3E-05	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	2.2E-08	6.6E-05	mg/kg-day	2.0E-01	mg/kg-day	3.3E-04
				Total PCB Homologs	1E+00	mg/kg	6.9E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-04	2.0E-04	mg/kg-day	2.0E-05	mg/kg-day	1.0E+01
				4,4'-DDD	1E-02	mg/kg	8.1E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.9E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-02	mg/kg	2.9E-06	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	9.8E-07	8.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	mg/kg	2.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	6.9E-08	5.9E-07	mg/kg-day	5.0E-04	mg/kg-day	1.2E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	7E-03	mg/kg	4.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-07	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03
				Dieldrin	2E-02	mg/kg	1.1E-06	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-05	3.2E-06	mg/kg-day	5.0E-05	mg/kg-day	6.4E-02
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	4E-04	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.6E-08	mg/kg-day	6.0E-03	mg/kg-day	1.3E-05
				Endosulfan Sulfate	1E-02	mg/kg	6.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	6.0E-03	mg/kg-day	3.3E-04
				Gamma-Chlordane	6E-03	mg/kg	3.9E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.4E-07	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.3E-03
				Heptachlor	1E-03	mg/kg	6.9E-08	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	3.1E-07	2.0E-07	mg/kg-day	5.0E-04	mg/kg-day	4.0E-04
				Heptachlor Epoxide	5E-04	mg/kg	3.2E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.9E-07	9.3E-08	mg/kg-day	1.3E-05	mg/kg-day	7.1E-03
				Arsenic	7E-02	mg/kg	4.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.1E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.6E-02
				Cadmium (other media)	1E-02	mg/kg	8.8E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	1.0E-03	mg/kg-day	2.6E-03
				Chromium	3E+00	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.5E-04	mg/kg-day	3.0E-03	mg/kg-day	1.8E-01
				Cobalt	2E-02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Iron	2E+01	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	7.0E-01	mg/kg-day	5.3E-03
				Lead	1E-02	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	7.6E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-04	mg/kg-day	2.2E-01
				Nickel	2E+00	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				Selenium	6E-01	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	5.0E-03	mg/kg-day	2.3E-02
			Exp. Route Total								2E-04					1E+01
		Exposure Point Total									2E-04					1E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.18.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-06	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	1.2E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.5E-08	3.2E-05	mg/kg-day	2.0E-02	mg/kg-day	1.6E-03
				Dibenz(a,h)anthracene	8E-03	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	4E-03	mg/kg	5.1E-08	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	8.1E-08	5.1E-07	mg/kg-day	8.0E-04	mg/kg-day	6.4E-04
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	4.2E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	4.0E-09	4.2E-05	mg/kg-day	2.0E-01	mg/kg-day	2.1E-04
				Total PCB Homologs	1E+00	mg/kg	1.3E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.6E-05	1.3E-04	mg/kg-day	2.0E-05	mg/kg-day	6.4E+00
				4,4'-DDD	1E-02	mg/kg	1.5E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	3.6E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-02	mg/kg	5.4E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.8E-07	5.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	mg/kg	3.8E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.3E-08	3.8E-07	mg/kg-day	5.0E-04	mg/kg-day	7.5E-04
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	7E-03	mg/kg	8.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.1E-08	8.8E-07	mg/kg-day	5.0E-04	mg/kg-day	1.8E-03
				Dieldrin	2E-02	mg/kg	2.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-06	2.0E-06	mg/kg-day	5.0E-05	mg/kg-day	4.1E-02
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	2E-04	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	6.0E-03	mg/kg-day	3.6E-06
				Endosulfan Sulfate	1E-02	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04
				Gamma-Chlordane	6E-03	mg/kg	7.3E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.6E-08	7.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Heptachlor	2E-04	mg/kg	2.7E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.2E-08	2.7E-08	mg/kg-day	5.0E-04	mg/kg-day	5.3E-05
				Heptachlor Epoxide	5E-04	mg/kg	5.9E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.4E-08	5.9E-08	mg/kg-day	1.3E-05	mg/kg-day	4.5E-03
				Arsenic	7E-02	mg/kg	8.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.3E-06	8.7E-06	mg/kg-day	3.0E-04	mg/kg-day	2.9E-02
				Cadmium (other media)	1E-02	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	3E+00	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01
				Cobalt	2E-02	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.2E-03
				Iron	2E+01	mg/kg	2.4E-04	mg/kg-day	N/A	N/A	N/A	2.4E-03	mg/kg-day	7.0E-01	mg/kg-day	3.4E-03
				Lead	1E-02	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-04	mg/kg-day	1.4E-01
				Nickel	2E+00	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	2.0E-02	mg/kg-day	9.7E-03
				Selenium	6E-01	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	5.0E-03	mg/kg-day	1.5E-02
			Exp. Route Total								3E-05					7E+00
		Exposure Point Total									3E-05					7E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.19.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-06	1.2E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	9.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-05	1.1E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-06	3.8E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	8.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.2E-07	1.0E-04	mg/kg-day	2.0E-02	mg/kg-day	5.2E-03
				Dibenz(a,h)anthracene	8E-03	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-05	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	8E-03	mg/kg	2.8E-07	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	4.4E-07	3.2E-06	mg/kg-day	8.0E-04	mg/kg-day	4.0E-03
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	1.2E-05	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	1.1E-08	1.3E-04	mg/kg-day	2.0E-01	mg/kg-day	6.7E-04
				Total PCB Homologs	1E+00	mg/kg	3.5E-05	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.0E-05	4.1E-04	mg/kg-day	2.0E-05	mg/kg-day	2.0E+01
				4,4'-DDD	1E-02	mg/kg	4.1E-07	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	9.8E-08	4.8E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-02	mg/kg	1.5E-06	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	5.0E-07	1.7E-05	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	mg/kg	1.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	3.5E-08	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.4E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	7E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	8.4E-08	2.8E-06	mg/kg-day	5.0E-04	mg/kg-day	5.6E-03
				Dieldrin	2E-02	mg/kg	5.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.0E-06	6.5E-06	mg/kg-day	5.0E-05	mg/kg-day	1.3E-01
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	4E-04	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	6.0E-03	mg/kg-day	2.6E-05
				Endosulfan Sulfate	1E-02	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	6.0E-03	mg/kg-day	6.8E-04
				Gamma-Chlordane	6E-03	mg/kg	2.0E-07	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	7.0E-08	2.3E-06	mg/kg-day	5.0E-04	mg/kg-day	4.7E-03
				Heptachlor	1E-03	mg/kg	3.5E-08	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	4.1E-07	mg/kg-day	5.0E-04	mg/kg-day	8.1E-04
				Heptachlor Epoxide	5E-04	mg/kg	1.6E-08	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.9E-07	mg/kg-day	1.3E-05	mg/kg-day	1.5E-02
				Arsenic	7E-02	mg/kg	2.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-06	2.8E-05	mg/kg-day	3.0E-04	mg/kg-day	9.3E-02
				Cadmium (other media)	1E-02	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	1.0E-03	mg/kg-day	5.2E-03
				Chromium	3E+00	mg/kg	9.5E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	3.0E-03	mg/kg-day	3.7E-01
				Cobalt	2E-02	mg/kg	6.8E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02
				Iron	2E+01	mg/kg	6.4E-04	mg/kg-day	N/A	N/A	N/A	7.5E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead	1E-02	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-04	mg/kg-day	4.5E-01
				Nickel	2E+00	mg/kg	5.3E-05	mg/kg-day	N/A	N/A	N/A	6.2E-04	mg/kg-day	2.0E-02	mg/kg-day	3.1E-02
				Selenium	6E-01	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	5.0E-03	mg/kg-day	4.7E-02
			Exp. Route Total								1E-04					2E+01
		Exposure Point Total									1E-04					2E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.19.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.19.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.0E-07	7.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-06	6.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	6.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	1.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.5E-08	6.3E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03
				Dibenz(a,h)anthracene	8E-03	mg/kg	5.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	4E-03	mg/kg	2.8E-08	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	4.5E-08	9.9E-07	mg/kg-day	8.0E-04	mg/kg-day	1.2E-03
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	8.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.3E-06	mg/kg-day	9.5E-04	(mg/kg-day) $^{-1}$	2.2E-09	8.2E-05	mg/kg-day	2.0E-01	mg/kg-day	4.1E-04
				Total PCB Homologs	1E+00	mg/kg	7.1E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-05	2.5E-04	mg/kg-day	2.0E-05	mg/kg-day	1.2E+01
				4,4'-DDD	1E-02	mg/kg	8.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	2.0E-08	2.9E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-02	mg/kg	3.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.0E-07	1.0E-05	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	mg/kg	2.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	7.1E-09	7.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	7E-03	mg/kg	4.9E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.4E-03
				Dieldrin	2E-02	mg/kg	1.1E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-06	4.0E-06	mg/kg-day	5.0E-05	mg/kg-day	7.9E-02
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	2E-04	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	6.0E-03	mg/kg-day	7.0E-06
				Endosulfan Sulfate	1E-02	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	6.0E-03	mg/kg-day	4.1E-04
				Gamma-Chlordane	6E-03	mg/kg	4.1E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.4E-08	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03
				Heptachlor	2E-04	mg/kg	1.5E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	6.7E-09	5.2E-08	mg/kg-day	5.0E-04	mg/kg-day	1.0E-04
				Heptachlor Epoxide	5E-04	mg/kg	3.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.1E-07	mg/kg-day	1.3E-05	mg/kg-day	8.8E-03
				Arsenic	7E-02	mg/kg	4.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.3E-07	1.7E-05	mg/kg-day	3.0E-04	mg/kg-day	5.6E-02
				Cadmium (other media)	1E-02	mg/kg	9.0E-08	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	1.0E-03	mg/kg-day	3.2E-03
				Chromium	3E+00	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	6.7E-04	mg/kg-day	3.0E-03	mg/kg-day	2.2E-01
				Cobalt	2E-02	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Iron	2E+01	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	4.6E-03	mg/kg-day	7.0E-01	mg/kg-day	6.5E-03
				Lead	1E-02	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	7.8E-07	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-04	mg/kg-day	2.7E-01
				Nickel	2E+00	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.9E-02
				Selenium	6E-01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	2.9E-02
			Exp. Route Total								3E-05					1E+01
		Exposure Point Total									3E-05					1E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.19.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.20.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-01	mg/kg-day	3.1E-04
				Benzo(a)anthracene	7E-03	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-03	mg/kg	5.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-06	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-03	mg/kg	5.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-06	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	6E-03	mg/kg	4.3E-07	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	6.9E-07	1.3E-06	mg/kg-day	8.0E-04	mg/kg-day	1.6E-03
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	5.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Total PCB Homologs	8E-02	mg/kg	5.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-05	1.7E-05	mg/kg-day	2.0E-05	mg/kg-day	8.3E-01
				4,4'-DDD	6E-04	mg/kg	4.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.0E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	mg/kg	2.2E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	7.5E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan Sulfate	1E-03	mg/kg	7.5E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	6.0E-03	mg/kg-day	3.7E-05
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A
				Chromium	5E-01	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.5E-02
				Cobalt	7E-03	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03
				Iron	9E+00	mg/kg	5.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Mercury (other media)	5E-01	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	1.0E-04	mg/kg-day	1.0E+00
				Nickel	2E-01	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.4E-05	mg/kg-day	2.0E-02	mg/kg-day	2.2E-03
				Selenium	2E-01	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	5.0E-03	mg/kg-day	9.5E-03
			Exp. Route Total								2E-05					2E+00
		Exposure Point Total									2E-05					2E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.20.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-01	mg/kg-day	2.0E-04
				Benzo(a)anthracene	7E-03	mg/kg	9.3E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	6.8E-08	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-03	mg/kg	9.7E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	7.1E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-03	mg/kg	1.0E-07	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	7.3E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	8.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	6E-03	mg/kg	8.0E-08	mg/kg-day	1.6E+00	$(mg/kg\text{-}day)^{-1}$	1.3E-07	8.0E-07	mg/kg-day	8.0E-04	mg/kg-day	1.0E-03
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	7.9E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Total PCB Homologs	8E-02	mg/kg	1.0E-06	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	2.1E-06	1.0E-05	mg/kg-day	2.0E-05	mg/kg-day	5.2E-01
				4,4'-DDD	6E-04	mg/kg	8.0E-09	mg/kg-day	2.4E-01	$(mg/kg\text{-}day)^{-1}$	1.9E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	mg/kg	4.1E-08	mg/kg-day	3.4E-01	$(mg/kg\text{-}day)^{-1}$	1.4E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan Sulfate	1E-03	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	6.0E-03	mg/kg-day	2.3E-05
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A
				Chromium	5E-01	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	7E-03	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03
				Iron	9E+00	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Mercury (other media)	5E-01	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	6.5E-05	mg/kg-day	1.0E-04	mg/kg-day	6.5E-01
				Nickel	2E-01	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.4E-03
				Selenium	2E-01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	5.0E-03	mg/kg-day	6.1E-03
			Exp. Route Total								4E-06					1E+00
		Exposure Point Total									4E-06					1E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.21.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	5.4E-06	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	1.0E-01	mg/kg-day	6.3E-04
				Benzo(a)anthracene	7E-03	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.9E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-03	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-05	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-03	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-06	3.2E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-05	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	6E-03	mg/kg	2.2E-07	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	3.5E-07	2.6E-06	mg/kg-day	8.0E-04	mg/kg-day	3.2E-03
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Total PCB Homologs	8E-02	mg/kg	2.9E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.8E-06	3.4E-05	mg/kg-day	2.0E-05	mg/kg-day	1.7E+00
				4,4'-DDD	6E-04	mg/kg	2.2E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	5.3E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	mg/kg	1.1E-07	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	3.8E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan Sulfate	1E-03	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	6.0E-03	mg/kg-day	7.5E-05
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A
				Chromium	5E-01	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	3.0E-03	mg/kg-day	7.0E-02
				Cobalt	7E-03	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	8.9E-03
				Iron	9E+00	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Mercury (other media)	5E-01	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	1.0E-04	mg/kg-day	2.1E+00
				Nickel	2E-01	mg/kg	7.7E-06	mg/kg-day	N/A	N/A	N/A	9.0E-05	mg/kg-day	2.0E-02	mg/kg-day	4.5E-03
				Selenium	2E-01	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	5.0E-03	mg/kg-day	1.9E-02
			Exp. Route Total								3E-05					4E+00
		Exposure Point Total									3E-05					4E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.21.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.21.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion													
				4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	1.0E-01	mg/kg-day	3.8E-04
				Benzo(a)anthracene	7E-03	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-03	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-03	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	6E-03	mg/kg	4.4E-08	mg/kg-day	1.6E+00	(mg/kg-day) $^{-1}$	7.1E-08	1.5E-06	mg/kg-day	8.0E-04	mg/kg-day	1.9E-03
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Total PCB Homologs	8E-02	mg/kg	5.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.2E-06	2.0E-05	mg/kg-day	2.0E-05	mg/kg-day	1.0E+00
				4,4'-DDD	6E-04	mg/kg	4.5E-09	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.1E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	mg/kg	2.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	7.7E-09	7.9E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Endosulfan Sulfate	1E-03	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	6.0E-03	mg/kg-day	4.5E-05
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A
				Chromium	5E-01	mg/kg	3.7E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.3E-02
				Cobalt	7E-03	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.4E-03
				Iron	9E+00	mg/kg	6.0E-05	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	7.0E-01	mg/kg-day	3.0E-03
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Mercury (other media)	5E-01	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-04	mg/kg-day	1.3E+00
				Nickel	2E-01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	2.0E-02	mg/kg-day	2.7E-03
				Selenium	2E-01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	5.0E-03	mg/kg-day	1.2E-02
			Exp. Route Total								6E-06					2E+00
		Exposure Point Total									6E-06					2E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.21.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion													
				1,4-Dioxane	6E+01	ug/L	5.2E-04	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	5.7E-06	1.5E-03	mg/kg-day	1.0E-01	mg/kg-day	1.5E-02
				2,4-Dimethylphenol	8E+00	ug/L	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				2-Chlorophenol	3E-01	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	9.3E-06	mg/kg-day	5.0E-03	mg/kg-day	1.9E-03
				4-Chloroaniline	1E+00	ug/L	1.3E-05	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	2.6E-06	3.8E-05	mg/kg-day	4.0E-03	mg/kg-day	9.6E-03
				Atrazine	3E+00	ug/L	3.0E-05	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	6.8E-06	8.6E-05	mg/kg-day	3.5E-02	mg/kg-day	2.5E-03
				Benzaldehyde	1E+00	ug/L	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	1.0E-01	mg/kg-day	3.0E-04
				Benzo(a)anthracene	4E-01	ug/L	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-06	9.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	2.4E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-05	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.6E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-06	1.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-02	mg/kg-day	1.4E-04
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.7E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.6E-06	1.4E-03	mg/kg-day	2.0E-02	mg/kg-day	6.8E-02
				Carbazole	5E-01	ug/L	4.5E-06	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.0E-08	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.6E-05	mg/kg-day	N/A	N/A	N/A	7.7E-05	mg/kg-day	4.0E-03	mg/kg-day	1.9E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.6E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.9E-02
				Phenanthrene	6E+00	ug/L	5.5E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	3.0E-02	mg/kg-day	5.4E-03
				1,2,4-Trichlorobenzene	2E-01	ug/L	2.3E-06	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	8.1E-09	6.6E-06	mg/kg-day	1.0E-02	mg/kg-day	6.6E-04
				1,2-Dichlorobenzene	4E+00	ug/L	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	9.0E-02	mg/kg-day	1.3E-03
				1,3-Dichlorobenzene	7E-01	ug/L	6.5E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	2.0E-02	mg/kg-day	9.5E-04
				1,4-Dichlorobenzene	8E+00	ug/L	7.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	4.3E-07	2.3E-04	mg/kg-day	7.0E-02	mg/kg-day	3.3E-03
				2-Butanone	1E+00	ug/L	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	6.0E-01	mg/kg-day	5.9E-05
				Benzene	1E+03	ug/L	1.0E-02	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	5.7E-04	3.0E-02	mg/kg-day	4.0E-03	mg/kg-day	7.5E+00
				Bromodichloromethane	3E-01	ug/L	3.0E-06	mg/kg-day	6.2E-02	(mg/kg-day) $^{-1}$	1.9E-07	8.8E-06	mg/kg-day	2.0E-02	mg/kg-day	4.4E-04
				Chlorobenzene	9E+01	ug/L	8.7E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	2.0E-02	mg/kg-day	1.3E-01
				Chloroethane	2E+00	ug/L	2.0E-05	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	1.0E-01	mg/kg-day	5.8E-04
				Chloroform	4E+00	ug/L	3.7E-05	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	1.1E-06	1.1E-04	mg/kg-day	1.0E-02	mg/kg-day	1.1E-02
				Ethylbenzene	2E+01	ug/L	1.6E-04	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.8E-06	4.7E-04	mg/kg-day	1.0E-01	mg/kg-day	4.7E-03
				Isopropylbenzene	2E+02	ug/L	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.4E-03	mg/kg-day	1.0E-01	mg/kg-day	4.4E-02
				Methyl tert-butyl ether	2E+01	ug/L	2.0E-04	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	3.6E-07	5.8E-04	mg/kg-day	3.0E-01	mg/kg-day	1.9E-03
				Tetrachloroethene	3E+00	ug/L	2.3E-05	mg/kg-day	5.4E-01	(mg/kg-day) $^{-1}$	1.3E-05	6.8E-05	mg/kg-day	1.0E-02	mg/kg-day	6.8E-03
				Toluene	5E+00	ug/L	4.6E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	8.0E-02	mg/kg-day	1.7E-03
				Trichloroethene	4E+00	ug/L	3.9E-05	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	5.0E-07	1.1E-04	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	1.1E-05	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	8.1E-06	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Xylene (Total)	5E+01	ug/L	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	2.0E-01	mg/kg-day	7.0E-03
				Aroclor-1242	3E-01	ug/L	3.1E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.2E-06	9.0E-06	mg/kg-day	2.0E-05	mg/kg-day	4.5E-01
				Aroclor-1248	2E-01	ug/L	1.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-06	4.9E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01
				Aroclor-1254	6E-01	ug/L	5.4E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-05	1.6E-05	mg/kg-day	2.0E-05	mg/kg-day	7.9E-01
				4,4'-DDD	7E-03	ug/L	6.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.5E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	5.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	3.6E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.2E-08	1.0E-07	mg/kg-day	5.0E-04	mg/kg-day	2.1E-04
				Aldrin	6E-03	ug/L	5.6E-08	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	9.6E-07	1.6E-07	mg/kg-day	3.0E-05	mg/kg-day	5.5E-03

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	3.3E-08	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	2.1E-07	9.6E-08	mg/kg-day	8.0E-03	mg/kg-day	1.2E-05
				Dieldrin	8E-03	ug/L	7.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-06	2.3E-07	mg/kg-day	5.0E-05	mg/kg-day	4.5E-03
				Endosulfan Sulfate	8E-03	ug/L	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	6.0E-03	mg/kg-day	3.7E-05
				Gamma-BHC (Lindane)	2E-02	ug/L	1.5E-07	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	1.7E-07	4.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.5E-03
				Heptachlor	5E-03	ug/L	4.3E-08	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.9E-07	1.3E-07	mg/kg-day	5.0E-04	mg/kg-day	2.5E-04
				Aluminum	1E+04	ug/L	1.2E-01	mg/kg-day	N/A	N/A	N/A	3.6E-01	mg/kg-day	1.0E+00	mg/kg-day	3.6E-01
				Arsenic	1E+02	ug/L	1.1E-03	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-03	3.3E-03	mg/kg-day	3.0E-04	mg/kg-day	1.1E+01
				Cadmium (drinking water)	3E+01	ug/L	2.5E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	5.0E-04	mg/kg-day	1.5E+00
				Chromium	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01
				Cobalt	3E+01	ug/L	3.1E-04	mg/kg-day	N/A	N/A	N/A	9.0E-04	mg/kg-day	3.0E-04	mg/kg-day	3.0E+00
				Iron	8E+04	ug/L	7.2E-01	mg/kg-day	N/A	N/A	N/A	2.1E+00	mg/kg-day	7.0E-01	mg/kg-day	3.0E+00
				Lead	8E+01	ug/L	7.4E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	5.5E-02	mg/kg-day	N/A	N/A	N/A	1.6E-01	mg/kg-day	2.4E-02	mg/kg-day	6.7E+00
				Nickel	8E+01	ug/L	7.3E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.1E-01
				Silver	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	5.0E-03	mg/kg-day	7.5E-02
				Thallium	9E+00	ug/L	8.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	8.0E-05	mg/kg-day	3.0E+00
				Zinc	4E+03	ug/L	3.9E-02	mg/kg-day	N/A	N/A	N/A	1.1E-01	mg/kg-day	3.0E-01	mg/kg-day	3.7E-01
			Exp. Route Total								2E-03					4E+01
			Dermal													
				1,4-Dioxane	6E+01	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	8E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	2.0E-02	mg/kg-day	1.6E-03
				2-Chlorophenol	3E-01	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	5.0E-03	mg/kg-day	2.1E-04
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	3.8E-06	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	8.8E-07	1.1E-05	mg/kg-day	3.5E-02	mg/kg-day	3.2E-04
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	7.2E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.0E-05	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.0E-01
				Carbazole	5E-01	ug/L	4.4E-06	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.7E-08	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	5.0E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	4.0E-03	mg/kg-day	3.6E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	8.6E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	2.0E-02	mg/kg-day	1.3E-02
				Phenanthrene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.0E-06	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	1.1E-08	8.6E-06	mg/kg-day	1.0E-02	mg/kg-day	8.6E-04
				1,2-Dichlorobenzene	4E+00	ug/L	2.7E-05	mg/kg-day	N/A	N/A	N/A	7.9E-05	mg/kg-day	9.0E-02	mg/kg-day	8.8E-04
				1,3-Dichlorobenzene	7E-01	ug/L	5.9E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	2.0E-02	mg/kg-day	8.7E-04
				1,4-Dichlorobenzene	8E+00	ug/L	5.2E-05	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	2.8E-07	1.5E-04	mg/kg-day	7.0E-02	mg/kg-day	2.2E-03
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+03	ug/L	1.6E-03	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	8.6E-05	4.6E-03	mg/kg-day	4.0E-03	mg/kg-day	1.1E+00
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	9E+01	ug/L	3.1E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	2.0E-02	mg/kg-day	4.6E-02
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	4E+00	ug/L	N/A	N/A	3.1E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	2E+01	ug/L	9.6E-05	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	1.1E-06	2.8E-04	mg/kg-day	1.0E-01	mg/kg-day	2.8E-03
				Isopropylbenzene	2E+02	ug/L	1.4E-03	mg/kg-day	N/A	N/A	N/A	4.1E-03	mg/kg-day	1.0E-01	mg/kg-day	4.1E-02
				Methyl tert-butyl ether	2E+01	ug/L	N/A	N/A	1.8E-03	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E+00	ug/L	1.4E-05	mg/kg-day	5.4E-01	$(mg/kg\text{-}day)^{-1}$	7.6E-06	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Toluene	5E+00	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	8.0E-02	mg/kg-day	5.8E-04
				Trichloroethene	4E+00	ug/L	6.4E-06	mg/kg-day	1.3E-02	$(mg/kg\text{-}day)^{-1}$	8.4E-08	1.9E-05	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	N/A	N/A	7.2E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	5E+01	ug/L	2.9E-04	mg/kg-day	N/A	N/A	N/A	8.4E-04	mg/kg-day	2.0E-01	mg/kg-day	4.2E-03
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	7E-03	ug/L	N/A	N/A	2.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	1.6E-08	mg/kg-day	6.3E+00	$(mg/kg\text{-}day)^{-1}$	1.0E-07	4.8E-08	mg/kg-day	8.0E-03	mg/kg-day	6.0E-06
				Dieldrin	8E-03	ug/L	5.5E-08	mg/kg-day	1.6E+01	$(mg/kg\text{-}day)^{-1}$	8.7E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03
				Endosulfan Sulfate	8E-03	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	6.0E-03	mg/kg-day	6.3E-06
				Gamma-BHC (Lindane)	2E-02	ug/L	5.9E-08	mg/kg-day	1.1E+00	$(mg/kg\text{-}day)^{-1}$	6.5E-08	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	5.7E-04
				Heptachlor	5E-03	ug/L	2.0E-08	mg/kg-day	4.5E+00	$(mg/kg\text{-}day)^{-1}$	9.2E-08	5.9E-08	mg/kg-day	5.0E-04	mg/kg-day	1.2E-04
				Aluminum	1E+04	ug/L	6.5E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E-02	mg/kg-day	1.9E-01
				Arsenic	1E+02	ug/L	N/A	N/A	1.5E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	3E+01	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	2.5E-05	mg/kg-day	1.5E-01
				Chromium	1E+01	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.5E-05	mg/kg-day	5.1E-02
				Cobalt	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	8E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-04					2E+00
			Inhalation													
				1,4-Dioxane	6E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	8E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m^3	5.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m^3	1.8E-01	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	5E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	1E+01	ug/m^3	2.3E+00	ug/m3	3.4E-05	(ug/m3)$^{-1}$	7.8E-05	6.7E+00	ug/m3	3.0E+00	ug/m3	2.2E+00
				Phenanthrene	6E+00	ug/m^3	9.7E-01	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	3.0E+00	ug/m3	9.4E-01
				1,2,4-Trichlorobenzene	2E-01	ug/m^3	3.9E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E+00	ug/m^3	7.2E-01	ug/m3	N/A	N/A	N/A	2.1E+00	ug/m3	2.0E+02	ug/m3	1.1E-02
				1,3-Dichlorobenzene	7E-01	ug/m^3	1.1E-01	ug/m3	N/A	N/A	N/A	3.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	8E+00	ug/m^3	1.4E+00	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.5E-05	4.0E+00	ug/m3	8.0E+02	ug/m3	5.0E-03
				2-Butanone	1E+00	ug/m^3	2.1E-01	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	1E+03	ug/m^3	1.8E+02	ug/m3	7.8E-06	(ug/m3)$^{-1}$	1.4E-03	5.3E+02	ug/m3	3.0E+01	ug/m3	1.8E+01
				Bromodichloromethane	3E-01	ug/m^3	5.3E-02	ug/m3	N/A	N/A	N/A	1.5E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	9E+01	ug/m^3	1.5E+01	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	5.0E+01	ug/m3	8.9E-01
				Chloroethane	2E+00	ug/m^3	3.5E-01	ug/m3	N/A	N/A	N/A	1.0E+00	ug/m3	1.0E+04	ug/m3	1.0E-04
				Chloroform	4E+00	ug/m^3	6.4E-01	ug/m3	2.3E-05	(ug/m3)$^{-1}$	1.5E-05	1.9E+00	ug/m3	1.0E+02	ug/m3	1.9E-02
				Ethylbenzene	2E+01	ug/m^3	2.8E+00	ug/m3	2.5E-06	(ug/m3)$^{-1}$	7.0E-06	8.2E+00	ug/m3	1.0E+03	ug/m3	8.2E-03
				Isopropylbenzene	2E+02	ug/m^3	2.6E+01	ug/m3	N/A	N/A	N/A	7.7E+01	ug/m3	4.0E+02	ug/m3	1.9E-01
				Methyl tert-butyl ether	2E+01	ug/m^3	3.5E+00	ug/m3	2.6E-07	(ug/m3)$^{-1}$	9.0E-07	1.0E+01	ug/m3	3.0E+03	ug/m3	3.4E-03
				Tetrachloroethene	3E+00	ug/m^3	4.1E-01	ug/m3	5.9E-06	(ug/m3)$^{-1}$	2.4E-06	1.2E+00	ug/m3	2.7E+02	ug/m3	4.4E-03
				Toluene	5E+00	ug/m^3	8.1E-01	ug/m3	N/A	N/A	N/A	2.3E+00	ug/m3	5.0E+03	ug/m3	4.7E-04
				Trichloroethene	4E+00	ug/m^3	6.7E-01	ug/m3	2.0E-06	(ug/m3)$^{-1}$	1.3E-06	2.0E+00	ug/m3	1.0E+01	ug/m3	2.0E-01
				Vinyl Chloride	1E+00	ug/m^3	2.0E-01	ug/m3	4.4E-06	(ug/m3)$^{-1}$	8.7E-07	5.8E-01	ug/m3	1.0E+02	ug/m3	5.8E-03
				Xylene (Total)	5E+01	ug/m^3	8.4E+00	ug/m3	N/A	N/A	N/A	2.4E+01	ug/m3	1.0E+02	ug/m3	2.4E-01
				Aroclor-1242	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	6E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	7E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	6E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	4E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	6E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	4E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	8E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	8E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	5E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	1E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	3E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	3E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	8E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	8E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	6E+03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	8E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	9E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	4E+03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
			Exp. Route Total								2E-03					2E+01
		Exposure Point Total									4E-03					6E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.22.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion													
				1,4-Dioxane	5E+00	ug/L	9.1E-06	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.0E-07	9.1E-05	mg/kg-day	1.0E-01	mg/kg-day	9.1E-04
				2,4-Dimethylphenol	2E+00	ug/L	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	2.0E-02	mg/kg-day	2.0E-03
				2-Chlorophenol	3E-01	ug/L	6.5E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	5.0E-03	mg/kg-day	1.3E-03
				4-Chloroaniline	1E+00	ug/L	2.7E-06	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.7E-05	mg/kg-day	4.0E-03	mg/kg-day	6.7E-03
				Atrazine	2E+00	ug/L	3.5E-06	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	8.0E-07	3.5E-05	mg/kg-day	3.5E-02	mg/kg-day	9.9E-04
				Benzaldehyde	1E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	1.0E-01	mg/kg-day	2.1E-04
				Benzo(a)anthracene	4E-02	ug/L	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	7.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.5E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	8.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.6E-05
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	4.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.4E-08	4.6E-05	mg/kg-day	2.0E-02	mg/kg-day	2.3E-03
				Carbazole	3E-01	ug/L	5.3E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.1E-08	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	4.0E-03	mg/kg-day	8.7E-03
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	4.1E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	2.0E-02	mg/kg-day	2.1E-04
				Phenanthrene	1E-01	ug/L	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				1,2,4-Trichlorobenzene	2E-01	ug/L	4.6E-07	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	1.7E-09	4.6E-06	mg/kg-day	1.0E-02	mg/kg-day	4.6E-04
				1,2-Dichlorobenzene	4E-01	ug/L	7.6E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	9.0E-02	mg/kg-day	8.5E-05
				1,3-Dichlorobenzene	3E-01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.7E-04
				1,4-Dichlorobenzene	9E-01	ug/L	1.8E-06	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	9.5E-09	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.5E-04
				2-Butanone	1E+00	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	6.0E-01	mg/kg-day	4.2E-05
				Benzene	2E+01	ug/L	4.3E-05	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.3E-06	4.3E-04	mg/kg-day	4.0E-03	mg/kg-day	1.1E-01
				Bromodichloromethane	3E-01	ug/L	5.2E-07	mg/kg-day	6.2E-02	(mg/kg-day) $^{-1}$	3.3E-08	5.2E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Chlorobenzene	6E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	2.0E-02	mg/kg-day	5.4E-03
				Chloroethane	4E-01	ug/L	7.7E-07	mg/kg-day	N/A	N/A	N/A	7.7E-06	mg/kg-day	1.0E-01	mg/kg-day	7.7E-05
				Chloroform	5E-01	ug/L	9.0E-07	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	2.8E-08	9.0E-06	mg/kg-day	1.0E-02	mg/kg-day	9.0E-04
				Ethylbenzene	4E-01	ug/L	8.5E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	9.3E-09	8.5E-06	mg/kg-day	1.0E-01	mg/kg-day	8.5E-05
				Isopropylbenzene	4E+00	ug/L	6.9E-06	mg/kg-day	N/A	N/A	N/A	6.9E-05	mg/kg-day	1.0E-01	mg/kg-day	6.9E-04
				Methyl tert-butyl ether	5E-01	ug/L	1.0E-06	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	1.9E-09	1.0E-05	mg/kg-day	3.0E-01	mg/kg-day	3.5E-05
				Tetrachloroethene	3E-01	ug/L	5.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) $^{-1}$	3.1E-07	5.8E-06	mg/kg-day	1.0E-02	mg/kg-day	5.8E-04
				Toluene	3E-01	ug/L	6.4E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	8.0E-02	mg/kg-day	8.0E-05
				Trichloroethene	3E-01	ug/L	6.3E-07	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	8.2E-09	6.3E-06	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	5.6E-07	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	4.0E-07	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03
				Xylene (Total)	2E+00	ug/L	3.8E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	2.0E-01	mg/kg-day	1.9E-04
				Aroclor-1242	5E-02	ug/L	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.0E-02
				Aroclor-1248	5E-02	ug/L	9.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.9E-08	9.9E-07	mg/kg-day	2.0E-05	mg/kg-day	4.9E-02
				Aroclor-1254	5E-02	ug/L	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.2E-02
				4,4'-DDD	3E-03	ug/L	5.2E-09	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.3E-09	5.2E-08	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	5.1E-09	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.7E-09	5.1E-08	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	5.1E-09	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.7E-09	5.1E-08	mg/kg-day	5.0E-04	mg/kg-day	1.0E-04
				Aldrin	2E-03	ug/L	3.5E-09	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	5.9E-08	3.5E-08	mg/kg-day	3.0E-05	mg/kg-day	1.2E-03

TABLE 7.22.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	2E-03	ug/L	3.4E-09	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	2.1E-08	3.4E-08	mg/kg-day	8.0E-03	mg/kg-day	4.3E-06
				Dieldrin	3E-03	ug/L	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.4E-08	5.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.0E-03
				Endosulfan Sulfate	3E-03	ug/L	5.1E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	6.0E-03	mg/kg-day	8.6E-06
				Gamma-BHC (Lindane)	2E-03	ug/L	3.7E-09	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	4.1E-09	3.7E-08	mg/kg-day	3.0E-04	mg/kg-day	1.2E-04
				Heptachlor	2E-03	ug/L	3.4E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.5E-08	3.4E-08	mg/kg-day	5.0E-04	mg/kg-day	6.9E-05
				Aluminum	3E+02	ug/L	5.2E-04	mg/kg-day	N/A	N/A	N/A	5.2E-03	mg/kg-day	1.0E+00	mg/kg-day	5.2E-03
				Arsenic	2E+01	ug/L	3.0E-05	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.4E-05	3.0E-04	mg/kg-day	3.0E-04	mg/kg-day	9.8E-01
				Cadmium (drinking water)	1E+00	ug/L	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	5.0E-04	mg/kg-day	4.1E-02
				Chromium	1E+00	ug/L	2.7E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	3.0E-03	mg/kg-day	9.1E-03
				Cobalt	2E+01	ug/L	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	3.0E-04	mg/kg-day	1.1E+00
				Iron	1E+04	ug/L	2.8E-02	mg/kg-day	N/A	N/A	N/A	2.8E-01	mg/kg-day	7.0E-01	mg/kg-day	4.0E-01
				Lead	2E+00	ug/L	4.2E-06	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	1.3E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	2.4E-02	mg/kg-day	5.4E-01
				Nickel	1E+01	ug/L	2.8E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Silver	3E+00	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	5.0E-03	mg/kg-day	1.1E-02
				Thallium	1E+00	ug/L	2.8E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	8.0E-05	mg/kg-day	3.5E-01
				Zinc	9E+01	ug/L	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	3.0E-01	mg/kg-day	5.7E-03
			Exp. Route Total								5E-05					4E+00
			Dermal													
				1,4-Dioxane	5E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.2E-08	6.6E-05	mg/kg-day	2.0E-02	mg/kg-day	3.3E-03
				Carbazole	3E-01	ug/L	4.8E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-09	4.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	6.1E-06	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	4.0E-03	mg/kg-day	1.5E-02
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	5.7E-07	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	2.0E-09	5.7E-06	mg/kg-day	1.0E-02	mg/kg-day	5.7E-04
				1,2-Dichlorobenzene	4E-01	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	9.0E-02	mg/kg-day	5.2E-05
				1,3-Dichlorobenzene	3E-01	ug/L	4.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				1,4-Dichlorobenzene	9E-01	ug/L	1.1E-06	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	6.0E-09	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.6E-04
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	2E+01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.22.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	3.6E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03
				Chloroethane	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	5E-01	ug/L	N/A	N/A	3.1E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	4E-01	ug/L	4.8E-07	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	5.2E-09	4.8E-06	mg/kg-day	1.0E-01	mg/kg-day	4.8E-05
				Isopropylbenzene	4E+00	ug/L	6.0E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	1.0E-01	mg/kg-day	6.0E-04
				Methyl tert-butyl ether	5E-01	ug/L	N/A	N/A	1.8E-03	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E-01	ug/L	3.3E-07	mg/kg-day	5.4E-01	$(mg/kg\text{-}day)^{-1}$	1.8E-07	3.3E-06	mg/kg-day	1.0E-02	mg/kg-day	3.3E-04
				Toluene	3E-01	ug/L	2.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	8.0E-02	mg/kg-day	2.6E-05
				Trichloroethene	3E-01	ug/L	9.9E-08	mg/kg-day	1.3E-02	$(mg/kg\text{-}day)^{-1}$	1.3E-09	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	N/A	N/A	7.2E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	2.0E-01	mg/kg-day	1.1E-04
				Aroclor-1242	5E-02	ug/L	N/A	N/A	1.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	5E-02	ug/L	N/A	N/A	1.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	2E-03	ug/L	1.6E-09	mg/kg-day	6.3E+00	$(mg/kg\text{-}day)^{-1}$	1.0E-08	1.6E-08	mg/kg-day	8.0E-03	mg/kg-day	2.0E-06
				Dieldrin	3E-03	ug/L	3.4E-09	mg/kg-day	1.6E+01	$(mg/kg\text{-}day)^{-1}$	5.5E-08	3.4E-08	mg/kg-day	5.0E-05	mg/kg-day	6.9E-04
				Endosulfan Sulfate	3E-03	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	8.1E-09	mg/kg-day	6.0E-03	mg/kg-day	1.4E-06
				Gamma-BHC (Lindane)	2E-03	ug/L	1.4E-09	mg/kg-day	1.1E+00	$(mg/kg\text{-}day)^{-1}$	1.5E-09	1.4E-08	mg/kg-day	3.0E-04	mg/kg-day	4.6E-05
				Heptachlor	2E-03	ug/L	1.5E-09	mg/kg-day	4.5E+00	$(mg/kg\text{-}day)^{-1}$	6.8E-09	1.5E-08	mg/kg-day	5.0E-04	mg/kg-day	3.0E-05
				Aluminum	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	2E+01	ug/L	N/A	N/A	1.5E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	1E+00	ug/L	6.5E-09	mg/kg-day	N/A	N/A	N/A	6.5E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	1E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	7.5E-05	mg/kg-day	2.4E-03
				Cobalt	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	1E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-07					3E-02
			Inhalation													
				1,4-Dioxane	5E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m^3	1.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m^3	5.2E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	2E-01	ug/m^3	1.0E-02	ug/m3	3.4E-05	(ug/m3)$^{-1}$	3.5E-07	1.0E-01	ug/m3	3.0E+00	ug/m3	3.5E-02
				Phenanthrene	1E-01	ug/m^3	5.6E-03	ug/m3	N/A	N/A	N/A	5.6E-02	ug/m3	3.0E+00	ug/m3	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/m^3	1.2E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E-01	ug/m^3	1.9E-02	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	2.0E+02	ug/m3	9.6E-04
				1,3-Dichlorobenzene	3E-01	ug/m^3	1.3E-02	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	9E-01	ug/m^3	4.4E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	4.9E-07	4.4E-01	ug/m3	8.0E+02	ug/m3	5.5E-04
				2-Butanone	1E+00	ug/m^3	6.2E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	2E+01	ug/m^3	1.1E+00	ug/m3	7.8E-06	(ug/m3)$^{-1}$	8.3E-06	1.1E+01	ug/m3	3.0E+01	ug/m3	3.5E-01
				Bromodichloromethane	3E-01	ug/m^3	1.3E-02	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	6E+00	ug/m^3	2.7E-01	ug/m3	N/A	N/A	N/A	2.7E+00	ug/m3	5.0E+01	ug/m3	5.4E-02
				Chloroethane	4E-01	ug/m^3	1.9E-02	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	1.0E+04	ug/m3	1.9E-05
				Chloroform	5E-01	ug/m^3	2.2E-02	ug/m3	2.3E-05	(ug/m3)$^{-1}$	5.2E-07	2.2E-01	ug/m3	1.0E+02	ug/m3	2.2E-03
				Ethylbenzene	4E-01	ug/m^3	2.1E-02	ug/m3	2.5E-06	(ug/m3)$^{-1}$	5.3E-08	2.1E-01	ug/m3	1.0E+03	ug/m3	2.1E-04
				Isopropylbenzene	4E+00	ug/m^3	1.7E-01	ug/m3	N/A	N/A	N/A	1.7E+00	ug/m3	4.0E+02	ug/m3	4.3E-03
				Methyl tert-butyl ether	5E-01	ug/m^3	2.6E-02	ug/m3	2.6E-07	(ug/m3)$^{-1}$	6.8E-09	2.6E-01	ug/m3	3.0E+03	ug/m3	8.7E-05
				Tetrachloroethene	3E-01	ug/m^3	1.5E-02	ug/m3	5.9E-06	(ug/m3)$^{-1}$	8.6E-08	1.5E-01	ug/m3	2.7E+02	ug/m3	5.4E-04
				Toluene	3E-01	ug/m^3	1.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+03	ug/m3	3.2E-05
				Trichloroethene	3E-01	ug/m^3	1.6E-02	ug/m3	2.0E-06	(ug/m3)$^{-1}$	3.2E-08	1.6E-01	ug/m3	1.0E+01	ug/m3	1.6E-02
				Vinyl Chloride	3E-01	ug/m^3	1.4E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	6.2E-08	1.4E-01	ug/m3	1.0E+02	ug/m3	1.4E-03
				Xylene (Total)	2E+00	ug/m^3	9.4E-02	ug/m3	N/A	N/A	N/A	9.4E-01	ug/m3	1.0E+02	ug/m3	9.4E-03
				Aroclor-1242	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	3E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	2E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	2E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	1E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	7E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	9E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
			Exp. Route Total								1E-05					5E-01
		Exposure Point Total									6E-05					4E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion													
				1,4-Dioxane	6E+01	ug/L	4.5E-04	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	5.0E-06	5.3E-03	mg/kg-day	1.0E-01	mg/kg-day	5.3E-02
				2,4-Dimethylphenol	8E+00	ug/L	6.6E-05	mg/kg-day	N/A	N/A	N/A	7.7E-04	mg/kg-day	2.0E-02	mg/kg-day	3.8E-02
				2-Chlorophenol	3E-01	ug/L	2.8E-06	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	5.0E-03	mg/kg-day	6.5E-03
				4-Chloroaniline	1E+00	ug/L	1.2E-05	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	2.3E-06	1.3E-04	mg/kg-day	4.0E-03	mg/kg-day	3.4E-02
				Atrazine	3E+00	ug/L	2.6E-05	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	6.0E-06	3.0E-04	mg/kg-day	3.5E-02	mg/kg-day	8.6E-03
				Benzaldehyde	1E+00	ug/L	9.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	1.0E-01	mg/kg-day	1.0E-03
				Benzo(a)anthracene	4E-01	ug/L	3.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-05	3.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.3E-05	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-05	3.6E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.1E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.8E-06	4.8E-03	mg/kg-day	2.0E-02	mg/kg-day	2.4E-01
				Carbazole	5E-01	ug/L	3.9E-06	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.9E-08	4.6E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.3E-05	mg/kg-day	N/A	N/A	N/A	2.7E-04	mg/kg-day	4.0E-03	mg/kg-day	6.7E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.5E-06	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	2.0E-02	mg/kg-day	6.7E-02
				Phenanthrene	6E+00	ug/L	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	3.0E-02	mg/kg-day	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/L	2.0E-06	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	7.1E-09	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03
				1,2-Dichlorobenzene	4E+00	ug/L	3.6E-05	mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	9.0E-02	mg/kg-day	4.7E-03
				1,3-Dichlorobenzene	7E-01	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	2.0E-02	mg/kg-day	3.3E-03
				1,4-Dichlorobenzene	8E+00	ug/L	6.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	3.7E-07	8.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.2E-02
				2-Butanone	1E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	6.0E-01	mg/kg-day	2.1E-04
				Benzene	1E+03	ug/L	9.0E-03	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	5.0E-04	1.1E-01	mg/kg-day	4.0E-03	mg/kg-day	2.6E+01
				Bromodichloromethane	3E-01	ug/L	2.6E-06	mg/kg-day	6.2E-02	(mg/kg-day) $^{-1}$	1.6E-07	3.1E-05	mg/kg-day	2.0E-02	mg/kg-day	1.5E-03
				Chlorobenzene	9E+01	ug/L	7.6E-04	mg/kg-day	N/A	N/A	N/A	8.9E-03	mg/kg-day	2.0E-02	mg/kg-day	4.5E-01
				Chloroethane	2E+00	ug/L	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	1.0E-01	mg/kg-day	2.0E-03
				Chloroform	4E+00	ug/L	3.2E-05	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	9.9E-07	3.7E-04	mg/kg-day	1.0E-02	mg/kg-day	3.7E-02
				Ethylbenzene	2E+01	ug/L	1.4E-04	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.5E-06	1.6E-03	mg/kg-day	1.0E-01	mg/kg-day	1.6E-02
				Isopropylbenzene	2E+02	ug/L	1.3E-03	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E-01	mg/kg-day	1.5E-01
				Methyl tert-butyl ether	2E+01	ug/L	1.7E-04	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	3.1E-07	2.0E-03	mg/kg-day	3.0E-01	mg/kg-day	6.7E-03
				Tetrachloroethene	3E+00	ug/L	2.1E-05	mg/kg-day	5.4E-01	(mg/kg-day) $^{-1}$	1.1E-05	2.4E-04	mg/kg-day	1.0E-02	mg/kg-day	2.4E-02
				Toluene	5E+00	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	8.0E-02	mg/kg-day	5.9E-03
				Trichloroethene	4E+00	ug/L	3.4E-05	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	4.4E-07	3.9E-04	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	9.9E-06	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	9.4E-05	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.8E-02
				Xylene (Total)	5E+01	ug/L	4.2E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	2.0E-01	mg/kg-day	2.4E-02
				Aroclor-1242	3E-01	ug/L	2.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-06	3.2E-05	mg/kg-day	2.0E-05	mg/kg-day	1.6E+00
				Aroclor-1248	2E-01	ug/L	1.5E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-06	1.7E-05	mg/kg-day	2.0E-05	mg/kg-day	8.6E-01
				Aroclor-1254	6E-01	ug/L	4.8E-06	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.5E-06	5.6E-05	mg/kg-day	2.0E-05	mg/kg-day	2.8E+00
				4,4'-DDD	7E-03	ug/L	5.5E-08	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.3E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	4.6E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.6E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	3.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.1E-08	3.6E-07	mg/kg-day	5.0E-04	mg/kg-day	7.3E-04
				Aldrin	6E-03	ug/L	4.9E-08	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	8.4E-07	5.8E-07	mg/kg-day	3.0E-05	mg/kg-day	1.9E-02

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	2.9E-08	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	1.8E-07	3.4E-07	mg/kg-day	8.0E-03	mg/kg-day	4.2E-05
				Dieldrin	8E-03	ug/L	6.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-06	8.0E-07	mg/kg-day	5.0E-05	mg/kg-day	1.6E-02
				Endosulfan Sulfate	8E-03	ug/L	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-07	mg/kg-day	6.0E-03	mg/kg-day	1.3E-04
				Gamma-BHC (Lindane)	2E-02	ug/L	1.3E-07	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	1.4E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Heptachlor	5E-03	ug/L	3.8E-08	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	4.4E-07	mg/kg-day	5.0E-04	mg/kg-day	8.8E-04
				Aluminum	1E+04	ug/L	1.1E-01	mg/kg-day	N/A	N/A	N/A	1.3E+00	mg/kg-day	1.0E+00	mg/kg-day	1.3E+00
				Arsenic	1E+02	ug/L	9.9E-04	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-03	1.2E-02	mg/kg-day	3.0E-04	mg/kg-day	3.8E+01
				Cadmium (drinking water)	3E+01	ug/L	2.2E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	5.0E-04	mg/kg-day	5.2E+00
				Chromium	1E+01	ug/L	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	3.0E-03	mg/kg-day	4.3E-01
				Cobalt	3E+01	ug/L	2.7E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	3.0E-04	mg/kg-day	1.1E+01
				Iron	8E+04	ug/L	6.3E-01	mg/kg-day	N/A	N/A	N/A	7.4E+00	mg/kg-day	7.0E-01	mg/kg-day	1.1E+01
				Lead	8E+01	ug/L	6.5E-04	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	4.8E-02	mg/kg-day	N/A	N/A	N/A	5.6E-01	mg/kg-day	2.4E-02	mg/kg-day	2.3E+01
				Nickel	8E+01	ug/L	6.4E-04	mg/kg-day	N/A	N/A	N/A	7.5E-03	mg/kg-day	2.0E-02	mg/kg-day	3.7E-01
				Silver	1E+01	ug/L	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	5.0E-03	mg/kg-day	2.6E-01
				Thallium	9E+00	ug/L	7.3E-05	mg/kg-day	N/A	N/A	N/A	8.5E-04	mg/kg-day	8.0E-05	mg/kg-day	1.1E+01
				Zinc	4E+03	ug/L	3.4E-02	mg/kg-day	N/A	N/A	N/A	3.9E-01	mg/kg-day	3.0E-01	mg/kg-day	1.3E+00
			Exp. Route Total								2E-03					1E+02
			Dermal													
				1,4-Dioxane	6E+01	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.0E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.6E-06	4.7E-03	mg/kg-day	2.0E-02	mg/kg-day	2.3E-01
				Carbazole	5E-01	ug/L	2.4E-06	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-08	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.8E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	4.0E-03	mg/kg-day	8.1E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	2.0E-02	mg/kg-day	2.8E-02
				Phenanthrene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	1.7E-06	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	6.0E-09	1.9E-05	mg/kg-day	1.0E-02	mg/kg-day	1.9E-03
				1,2-Dichlorobenzene	4E+00	ug/L	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	9.0E-02	mg/kg-day	2.0E-03
				1,3-Dichlorobenzene	7E-01	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03
				1,4-Dichlorobenzene	8E+00	ug/L	2.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.6E-07	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+03	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	9E+01	ug/L	1.8E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.0E-01
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	4E+00	ug/L	N/A	N/A	3.1E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	2E+01	ug/L	5.5E-05	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	6.1E-07	6.4E-04	mg/kg-day	1.0E-01	mg/kg-day	6.4E-03
				Isopropylbenzene	2E+02	ug/L	7.9E-04	mg/kg-day	N/A	N/A	N/A	9.2E-03	mg/kg-day	1.0E-01	mg/kg-day	9.2E-02
				Methyl tert-butyl ether	2E+01	ug/L	N/A	N/A	1.8E-03	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E+00	ug/L	7.9E-06	mg/kg-day	5.4E-01	$(mg/kg\text{-}day)^{-1}$	4.3E-06	9.2E-05	mg/kg-day	1.0E-02	mg/kg-day	9.2E-03
				Toluene	5E+00	ug/L	9.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	8.0E-02	mg/kg-day	1.3E-03
				Trichloroethene	4E+00	ug/L	N/A	N/A	1.3E-02	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	N/A	N/A	7.2E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	5E+01	ug/L	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	2.0E-01	mg/kg-day	9.7E-03
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	7E-03	ug/L	N/A	N/A	2.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	9.2E-09	mg/kg-day	6.3E+00	$(mg/kg\text{-}day)^{-1}$	5.8E-08	1.1E-07	mg/kg-day	8.0E-03	mg/kg-day	1.3E-05
				Dieldrin	8E-03	ug/L	3.1E-08	mg/kg-day	1.6E+01	$(mg/kg\text{-}day)^{-1}$	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Endosulfan Sulfate	8E-03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	2E-02	ug/L	3.3E-08	mg/kg-day	1.1E+00	$(mg/kg\text{-}day)^{-1}$	3.6E-08	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Heptachlor	5E-03	ug/L	1.1E-08	mg/kg-day	4.5E+00	$(mg/kg\text{-}day)^{-1}$	5.2E-08	1.3E-07	mg/kg-day	5.0E-04	mg/kg-day	2.7E-04
				Aluminum	1E+04	ug/L	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.6E-03	mg/kg-day	1.0E-02	mg/kg-day	5.6E-01
				Arsenic	1E+02	ug/L	N/A	N/A	1.5E+00	$(mg/kg\text{-}day)^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	3E+01	ug/L	9.8E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	2.5E-05	mg/kg-day	4.6E-01
				Chromium	1E+01	ug/L	9.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.5E-05	mg/kg-day	1.5E-01
				Cobalt	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	8E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					2E+00
			Inhalation													
				1,4-Dioxane	6E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	8E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m^3	1.4E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m^3	4.5E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	5E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	1E+01	ug/m^3	5.8E-01	ug/m3	3.4E-05	(ug/m3)$^{-1}$	2.0E-05	6.7E+00	ug/m3	3.0E+00	ug/m3	2.2E+00
				Phenanthrene	6E+00	ug/m^3	2.4E-01	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	3.0E+00	ug/m3	9.4E-01
				1,2,4-Trichlorobenzene	2E-01	ug/m^3	9.9E-03	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E+00	ug/m^3	1.8E-01	ug/m3	N/A	N/A	N/A	2.1E+00	ug/m3	2.0E+02	ug/m3	1.1E-02
				1,3-Dichlorobenzene	7E-01	ug/m^3	2.8E-02	ug/m3	N/A	N/A	N/A	3.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	8E+00	ug/m^3	3.5E-01	ug/m3	1.1E-05	(ug/m3)$^{-1}$	3.8E-06	4.0E+00	ug/m3	8.0E+02	ug/m3	5.0E-03
				2-Butanone	1E+00	ug/m^3	5.3E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	1E+03	ug/m^3	4.5E+01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.5E-04	5.3E+02	ug/m3	3.0E+01	ug/m3	1.8E+01
				Bromodichloromethane	3E-01	ug/m^3	1.3E-02	ug/m3	N/A	N/A	N/A	1.5E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	9E+01	ug/m^3	3.8E+00	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	5.0E+01	ug/m3	8.9E-01
				Chloroethane	2E+00	ug/m^3	8.6E-02	ug/m3	N/A	N/A	N/A	1.0E+00	ug/m3	1.0E+04	ug/m3	1.0E-04
				Chloroform	4E+00	ug/m^3	1.6E-01	ug/m3	2.3E-05	(ug/m3)$^{-1}$	3.7E-06	1.9E+00	ug/m3	1.0E+02	ug/m3	1.9E-02
				Ethylbenzene	2E+01	ug/m^3	7.0E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.7E-06	8.2E+00	ug/m3	1.0E+03	ug/m3	8.2E-03
				Isopropylbenzene	2E+02	ug/m^3	6.6E+00	ug/m3	N/A	N/A	N/A	7.7E+01	ug/m3	4.0E+02	ug/m3	1.9E-01
				Methyl tert-butyl ether	2E+01	ug/m^3	8.6E-01	ug/m3	2.6E-07	(ug/m3)$^{-1}$	2.2E-07	1.0E+01	ug/m3	3.0E+03	ug/m3	3.4E-03
				Tetrachloroethene	3E+00	ug/m^3	1.0E-01	ug/m3	5.9E-06	(ug/m3)$^{-1}$	6.1E-07	1.2E+00	ug/m3	2.7E+02	ug/m3	4.4E-03
				Toluene	5E+00	ug/m^3	2.0E-01	ug/m3	N/A	N/A	N/A	2.3E+00	ug/m3	5.0E+03	ug/m3	4.7E-04
				Trichloroethene	4E+00	ug/m^3	1.7E-01	ug/m3	2.0E-06	(ug/m3)$^{-1}$	3.4E-07	2.0E+00	ug/m3	1.0E+01	ug/m3	2.0E-01
				Vinyl Chloride	1E+00	ug/m^3	4.9E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	4.4E-07	5.8E-01	ug/m3	1.0E+02	ug/m3	5.8E-03
				Xylene (Total)	5E+01	ug/m^3	2.1E+00	ug/m3	N/A	N/A	N/A	2.4E+01	ug/m3	1.0E+02	ug/m3	2.4E-01
				Aroclor-1242	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	6E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	7E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	6E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	4E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	6E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	4E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	8E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	8E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	5E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	1E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	3E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	3E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	8E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	8E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	6E+03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	8E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	9E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	4E+03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
			Exp. Route Total								4E-04					2E+01
		Exposure Point Total									3E-03					2E+02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.7.RME for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m^3) x Unit Risk $(ug/m^3)^{-1}$ x ET (1 hr/day) / CF (24 hr/day)

Ingestion early-life cancer risk = EPC (ug/L) x CSF $(mg/kg\text{-}day)^{-1}$ x IR (L/day) x CF (0.001 mg/ug) / BW (kg)

Dermal early-life cancer risk = SA (cm^2) x DA_{event} (mg/cm^2-event) x CSF $(mg/kg\text{-}day)^{-1}$ x EV (event/day) / BW (kg)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.23.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion													
				1,4-Dioxane	5E+00	ug/L	7.5E-06	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	8.3E-08	2.6E-04	mg/kg-day	1.0E-01	mg/kg-day	2.6E-03
				2,4-Dimethylphenol	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	2.0E-02	mg/kg-day	5.9E-03
				2-Chlorophenol	3E-01	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	5.0E-03	mg/kg-day	3.8E-03
				4-Chloroaniline	1E+00	ug/L	2.2E-06	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	4.4E-07	7.8E-05	mg/kg-day	4.0E-03	mg/kg-day	1.9E-02
				Atrazine	2E+00	ug/L	2.9E-06	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	6.6E-07	1.0E-04	mg/kg-day	3.5E-02	mg/kg-day	2.9E-03
				Benzaldehyde	1E+00	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	1.0E-01	mg/kg-day	6.1E-04
				Benzo(a)anthracene	4E-02	ug/L	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	6.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	6.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.4E-07	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	3.0E-02	mg/kg-day	2.8E-04
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.3E-08	1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	6.6E-03
				Carbazole	3E-01	ug/L	4.4E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.8E-09	1.5E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-03	mg/kg-day	2.5E-02
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	3.4E-07	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Phenanthrene	1E-01	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	3.0E-02	mg/kg-day	2.2E-04
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.8E-07	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	1.4E-09	1.3E-05	mg/kg-day	1.0E-02	mg/kg-day	1.3E-03
				1,2-Dichlorobenzene	4E-01	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	9.0E-02	mg/kg-day	2.5E-04
				1,3-Dichlorobenzene	3E-01	ug/L	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				1,4-Dichlorobenzene	9E-01	ug/L	1.5E-06	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	7.9E-09	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.3E-04
				2-Butanone	1E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	6.0E-01	mg/kg-day	1.2E-04
				Benzene	2E+01	ug/L	3.5E-05	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	1.9E-06	1.2E-03	mg/kg-day	4.0E-03	mg/kg-day	3.1E-01
				Bromodichloromethane	3E-01	ug/L	4.3E-07	mg/kg-day	6.2E-02	(mg/kg-day) $^{-1}$	2.7E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.6E-04
				Chlorobenzene	6E+00	ug/L	8.9E-06	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.6E-02
				Chloroethane	4E-01	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-01	mg/kg-day	2.2E-04
				Chloroform	5E-01	ug/L	7.5E-07	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	2.3E-08	2.6E-05	mg/kg-day	1.0E-02	mg/kg-day	2.6E-03
				Ethylbenzene	4E-01	ug/L	7.0E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	7.7E-09	2.5E-05	mg/kg-day	1.0E-01	mg/kg-day	2.5E-04
				Isopropylbenzene	4E+00	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	1.0E-01	mg/kg-day	2.0E-03
				Methyl tert-butyl ether	5E-01	ug/L	8.6E-07	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	1.6E-09	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
				Tetrachloroethene	3E-01	ug/L	4.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Toluene	3E-01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	8.0E-02	mg/kg-day	2.3E-04
				Trichloroethene	3E-01	ug/L	5.3E-07	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	6.8E-09	1.8E-05	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	4.6E-07	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	1.3E-05	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.4E-03
				Xylene (Total)	2E+00	ug/L	3.1E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	2.0E-01	mg/kg-day	5.5E-04
				Aroclor-1242	5E-02	ug/L	8.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.3E-08	2.9E-06	mg/kg-day	2.0E-05	mg/kg-day	1.4E-01
				Aroclor-1248	5E-02	ug/L	8.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.2E-08	2.9E-06	mg/kg-day	2.0E-05	mg/kg-day	1.4E-01
				Aroclor-1254	5E-02	ug/L	8.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.6E-08	3.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.5E-01
				4,4'-DDD	3E-03	ug/L	4.3E-09	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.0E-09	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	4.2E-09	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.4E-09	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	4.2E-09	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.4E-09	1.5E-07	mg/kg-day	5.0E-04	mg/kg-day	2.9E-04
				Aldrin	2E-03	ug/L	2.9E-09	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	4.9E-08	1.0E-07	mg/kg-day	3.0E-05	mg/kg-day	3.4E-03

TABLE 7.23.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	2E-03	ug/L	2.8E-09	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	1.8E-08	9.9E-08	mg/kg-day	8.0E-03	mg/kg-day	1.2E-05
				Dieldrin	3E-03	ug/L	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.9E-08	1.5E-07	mg/kg-day	5.0E-05	mg/kg-day	3.0E-03
				Endosulfan Sulfate	3E-03	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	6.0E-03	mg/kg-day	2.5E-05
				Gamma-BHC (Lindane)	2E-03	ug/L	3.1E-09	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	3.4E-09	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Heptachlor	2E-03	ug/L	2.8E-09	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.0E-07	mg/kg-day	5.0E-04	mg/kg-day	2.0E-04
				Aluminum	3E+02	ug/L	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	1.5E-02
				Arsenic	2E+01	ug/L	2.4E-05	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.7E-05	8.6E-04	mg/kg-day	3.0E-04	mg/kg-day	2.9E+00
				Cadmium (drinking water)	1E+00	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	5.0E-04	mg/kg-day	1.2E-01
				Chromium	1E+00	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	8.0E-05	mg/kg-day	3.0E-03	mg/kg-day	2.7E-02
				Cobalt	2E+01	ug/L	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.5E-04	mg/kg-day	3.0E-04	mg/kg-day	3.2E+00
				Iron	1E+04	ug/L	2.3E-02	mg/kg-day	N/A	N/A	N/A	8.2E-01	mg/kg-day	7.0E-01	mg/kg-day	1.2E+00
				Lead	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.7E-02	mg/kg-day	2.4E-02	mg/kg-day	1.6E+00
				Nickel	1E+01	ug/L	2.3E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	2.0E-02	mg/kg-day	4.0E-02
				Silver	3E+00	ug/L	4.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	5.0E-03	mg/kg-day	3.3E-02
				Thallium	1E+00	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	8.0E-05	mg/kg-day	8.0E-05	mg/kg-day	1.0E+00
				Zinc	9E+01	ug/L	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	3.0E-01	mg/kg-day	1.6E-02
			Exp. Route Total								6E-05					1E+01
			Dermal													
				1,4-Dioxane	5E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.2E-08	1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	6.4E-03
				Carbazole	3E-01	ug/L	2.7E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.4E-09	9.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	4.0E-03	mg/kg-day	3.0E-02
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.2E-07	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	1.1E-09	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03
				1,2-Dichlorobenzene	4E-01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.2E-06	mg/kg-day	9.0E-02	mg/kg-day	1.0E-04
				1,3-Dichlorobenzene	3E-01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04
				1,4-Dichlorobenzene	9E-01	ug/L	6.2E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	3.3E-09	2.2E-05	mg/kg-day	7.0E-02	mg/kg-day	3.1E-04
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	2E+01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.23.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chloroethane	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	5E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	4E-01	ug/L	2.7E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	2.9E-09	9.4E-06	mg/kg-day	1.0E-01	mg/kg-day	9.4E-05
				Isopropylbenzene	4E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	1.0E-01	mg/kg-day	1.2E-03
				Methyl tert-butyl ether	5E-01	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E-01	ug/L	1.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) $^{-1}$	9.9E-08	6.4E-06	mg/kg-day	1.0E-02	mg/kg-day	6.4E-04
				Toluene	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A
				Trichloroethene	3E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	2.0E-01	mg/kg-day	2.1E-04
				Aroclor-1242	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	2E-03	ug/L	9.0E-10	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	5.6E-09	3.1E-08	mg/kg-day	8.0E-03	mg/kg-day	3.9E-06
				Dieldrin	3E-03	ug/L	1.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.1E-08	6.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Endosulfan Sulfate	3E-03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	2E-03	ug/L	7.7E-10	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	8.5E-10	2.7E-08	mg/kg-day	3.0E-04	mg/kg-day	9.0E-05
				Heptachlor	2E-03	ug/L	8.5E-10	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	3.8E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	6.0E-05
				Aluminum	3E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	1.0E-02	mg/kg-day	3.8E-03
				Arsenic	2E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	1E+00	ug/L	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	2.5E-05	mg/kg-day	5.9E-03
				Chromium	1E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	7.5E-05	mg/kg-day	5.3E-03
				Cobalt	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	1E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-07					6E-02
			Inhalation													
				1,4-Dioxane	5E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m^3	4.7E-03	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m^3	1.5E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	3E-01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	4E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	2E-01	ug/m^3	3.0E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.0E-07	1.0E-01	ug/m3	3.0E+00	ug/m3	3.5E-02
				Phenanthrene	1E-01	ug/m^3	1.6E-03	ug/m3	N/A	N/A	N/A	5.6E-02	ug/m3	3.0E+00	ug/m3	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/m^3	3.3E-03	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E-01	ug/m^3	5.5E-03	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	2.0E+02	ug/m3	9.6E-04
				1,3-Dichlorobenzene	3E-01	ug/m^3	3.8E-03	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	9E-01	ug/m^3	1.3E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.4E-07	4.4E-01	ug/m3	8.0E+02	ug/m3	5.5E-04
				2-Butanone	1E+00	ug/m^3	1.8E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	2E+01	ug/m^3	3.0E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	2.4E-06	1.1E+01	ug/m3	3.0E+01	ug/m3	3.5E-01
				Bromodichloromethane	3E-01	ug/m^3	3.7E-03	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	6E+00	ug/m^3	7.7E-02	ug/m3	N/A	N/A	N/A	2.7E+00	ug/m3	5.0E+01	ug/m3	5.4E-02
				Chloroethane	4E-01	ug/m^3	5.5E-03	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	1.0E+04	ug/m3	1.9E-05
				Chloroform	5E-01	ug/m^3	6.4E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	1.5E-07	2.2E-01	ug/m3	1.0E+02	ug/m3	2.2E-03
				Ethylbenzene	4E-01	ug/m^3	6.0E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.5E-08	2.1E-01	ug/m3	1.0E+03	ug/m3	2.1E-04
				Isopropylbenzene	4E+00	ug/m^3	4.9E-02	ug/m3	N/A	N/A	N/A	1.7E+00	ug/m3	4.0E+02	ug/m3	4.3E-03
				Methyl tert-butyl ether	5E-01	ug/m^3	7.4E-03	ug/m3	2.6E-07	(ug/m3)$^{-1}$	1.9E-09	2.6E-01	ug/m3	3.0E+03	ug/m3	8.7E-05
				Tetrachloroethene	3E-01	ug/m^3	4.2E-03	ug/m3	5.9E-06	(ug/m3)$^{-1}$	2.5E-08	1.5E-01	ug/m3	2.7E+02	ug/m3	5.4E-04
				Toluene	3E-01	ug/m^3	4.6E-03	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+03	ug/m3	3.2E-05
				Trichloroethene	3E-01	ug/m^3	4.5E-03	ug/m3	2.0E-06	(ug/m3)$^{-1}$	9.1E-09	1.6E-01	ug/m3	1.0E+01	ug/m3	1.6E-02
				Vinyl Chloride	3E-01	ug/m^3	4.0E-03	ug/m3	4.4E-06	(ug/m3)$^{-1}$	3.5E-08	1.4E-01	ug/m3	1.0E+02	ug/m3	1.4E-03
				Xylene (Total)	2E+00	ug/m^3	2.7E-02	ug/m3	N/A	N/A	N/A	9.4E-01	ug/m3	1.0E+02	ug/m3	9.4E-03
				Aroclor-1242	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	5E-02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	3E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	2E-03	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	3E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	2E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	2E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	1E+04	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	2E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	7E+02	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	1E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	3E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	1E+00	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	9E+01	ug/m^3	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
			Exp. Route Total								3E-06					5E-01
		Exposure Point Total									6E-05					1E+01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.7.CT for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m^3) x Unit Risk (ug/m^3)$^{-1}$ x ET (0.33 hr/day) / CF (24 hr/day)

Ingestion early-life cancer risk = EPC (ug/L) x CSF (mg/kg-day)$^{-1}$ x IR (L/day) x CF (0.001 mg/ug) / BW (kg)

Dermal early-life cancer risk = SA (cm^2) x DA$_{event}$ (mg/cm^2-event) x CSF (mg/kg-day)$^{-1}$ x EV (event/day) / BW (kg)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.24.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Shallow Monitoring Wells	Ingestion													
				1,4-Dioxane	7E+00	ug/L	2.4E-08	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	2.7E-10	1.7E-06	mg/kg-day	1.0E-01	mg/kg-day	1.7E-05
				2,4-Dimethylphenol	3E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				2-Chlorophenol	3E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	5.0E-03	mg/kg-day	1.7E-05
				4-Chloroaniline	1E+00	ug/L	4.9E-09	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	9.8E-10	3.4E-07	mg/kg-day	4.0E-03	mg/kg-day	8.6E-05
				Atrazine	3E+00	ug/L	1.1E-08	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	2.5E-09	7.7E-07	mg/kg-day	3.5E-02	mg/kg-day	2.2E-05
				Benzaldehyde	1E+00	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	1.0E-01	mg/kg-day	2.7E-06
				Benzo(a)anthracene	3E-02	ug/L	1.1E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-11	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	4.0E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-09	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	9.9E-11	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.2E-11	6.9E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	3.0E-02	mg/kg-day	1.2E-06
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.4E-05
				Carbazole	5E-01	ug/L	1.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-11	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	4.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-10	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Phenanthrene	2E-01	ug/L	7.0E-10	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	3.0E-02	mg/kg-day	1.6E-06
				1,2,4-Trichlorobenzene	2E-01	ug/L	8.4E-10	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	3.0E-12	5.9E-08	mg/kg-day	1.0E-02	mg/kg-day	5.9E-06
				1,2-Dichlorobenzene	8E-01	ug/L	2.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	9.0E-02	mg/kg-day	2.1E-06
				1,3-Dichlorobenzene	7E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.4E-06
				1,4-Dichlorobenzene	9E-01	ug/L	3.2E-09	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.7E-11	2.3E-07	mg/kg-day	7.0E-02	mg/kg-day	3.2E-06
				2-Butanone	1E+00	ug/L	4.5E-09	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	6.0E-01	mg/kg-day	5.3E-07
				Benzene	1E+02	ug/L	3.6E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.0E-08	2.6E-05	mg/kg-day	4.0E-03	mg/kg-day	6.4E-03
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chlorobenzene	6E+00	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.7E-05
				Chloroethane	2E+00	ug/L	7.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	1.0E-01	mg/kg-day	5.1E-06
				Chloroform	6E-01	ug/L	2.2E-09	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	6.9E-11	1.6E-07	mg/kg-day	1.0E-02	mg/kg-day	1.6E-05
				Ethylbenzene	1E+00	ug/L	4.5E-09	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	5.0E-11	3.2E-07	mg/kg-day	1.0E-01	mg/kg-day	3.2E-06
				Isopropylbenzene	1E+01	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	1.0E-01	mg/kg-day	2.4E-05
				Methyl tert-butyl ether	2E+00	ug/L	5.7E-09	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	1.0E-11	4.0E-07	mg/kg-day	3.0E-01	mg/kg-day	1.3E-06
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-02	mg/kg-day	1.8E-06
				Trichloroethene	6E-01	ug/L	2.1E-09	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	2.7E-11	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	2.2E-09	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	1.6E-09	1.6E-07	mg/kg-day	3.0E-03	mg/kg-day	5.2E-05
				Xylene (Total)	2E+00	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	2.0E-01	mg/kg-day	2.5E-06
				Aroclor-1242	3E-01	ug/L	1.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Aroclor-1248	2E-01	ug/L	6.3E-10	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-09	4.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.2E-03
				Aroclor-1254	6E-01	ug/L	2.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				4,4'-DDD	5E-03	ug/L	1.7E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	4.2E-12	1.2E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	1.4E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.7E-12	9.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	1.3E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.5E-12	9.3E-10	mg/kg-day	5.0E-04	mg/kg-day	1.9E-06
				Aldrin	6E-03	ug/L	2.1E-11	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	3.6E-10	1.5E-09	mg/kg-day	3.0E-05	mg/kg-day	4.9E-05

TABLE 7.24.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	1.2E-11	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	7.7E-11	8.6E-10	mg/kg-day	8.0E-03	mg/kg-day	1.1E-07
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	3.0E-11	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	3.3E-11	2.1E-09	mg/kg-day	3.0E-04	mg/kg-day	6.9E-06
				Heptachlor	5E-03	ug/L	1.6E-11	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	7.2E-11	1.1E-09	mg/kg-day	5.0E-04	mg/kg-day	2.3E-06
				Aluminum	1E+03	ug/L	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	1.0E+00	mg/kg-day	3.1E-04
				Arsenic	3E+01	ug/L	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.4E-02
				Cadmium (drinking water)	2E+00	ug/L	7.7E-09	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
				Chromium	2E+00	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	3.0E-03	mg/kg-day	1.4E-04
				Cobalt	8E+00	ug/L	2.7E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.2E-03
				Iron	2E+04	ug/L	8.4E-05	mg/kg-day	N/A	N/A	N/A	5.9E-03	mg/kg-day	7.0E-01	mg/kg-day	8.4E-03
				Lead	3E+00	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	2.4E-02	mg/kg-day	1.0E-02
				Nickel	9E+00	ug/L	3.1E-08	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Silver	2E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	5.0E-03	mg/kg-day	9.7E-05
				Thallium	3E+00	ug/L	9.2E-09	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	8.0E-05	mg/kg-day	8.1E-03
				Zinc	3E+02	ug/L	9.6E-07	mg/kg-day	N/A	N/A	N/A	6.7E-05	mg/kg-day	3.0E-01	mg/kg-day	2.2E-04
			Exp. Route Total								2E-07					8E-02
			Dermal													
				1,4-Dioxane	7E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.0E-10	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.2E-04
				Carbazole	5E-01	ug/L	N/A	N/A	2.0E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	7.6E-09	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	N/A	N/A	3.6E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				1,2-Dichlorobenzene	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.0E-02	mg/kg-day	N/A
				1,3-Dichlorobenzene	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	9E-01	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.24.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	6E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Isopropylbenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Methyl tert-butyl ether	2E+00	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A
				Trichloroethene	6E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	N/A	N/A	1.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Heptachlor	5E-03	ug/L	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	3E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	2E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-10					4E-04
		Exposure Point Total									2E-07					8E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.24.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

TABLE 7.24.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Shallow Monitoring Wells	Ingestion													
				1,4-Dioxane	7E+00	ug/L	1.2E-08	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.3E-10	8.5E-07	mg/kg-day	1.0E-01	mg/kg-day	8.5E-06
				2,4-Dimethylphenol	3E+00	ug/L	5.2E-09	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				2-Chlorophenol	3E-01	ug/L	5.9E-10	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	5.0E-03	mg/kg-day	8.3E-06
				4-Chloroaniline	1E+00	ug/L	2.4E-09	mg/kg-day	2.0E-01	(mg/kg-day) $^{-1}$	4.9E-10	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.2E-05
				Atrazine	2E+00	ug/L	3.1E-09	mg/kg-day	2.3E-01	(mg/kg-day) $^{-1}$	7.2E-10	2.2E-07	mg/kg-day	3.5E-02	mg/kg-day	6.3E-06
				Benzaldehyde	1E+00	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	1.0E-01	mg/kg-day	1.3E-06
				Benzo(a)anthracene	3E-02	ug/L	5.3E-11	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-11	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	2.0E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-09	1.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	4.9E-11	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-11	3.4E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.6E-10	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	3.0E-02	mg/kg-day	6.1E-07
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	7.6E-09	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-10	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	3E-01	ug/L	5.0E-10	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.9E-12	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-10	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	2.0E-02	mg/kg-day	5.2E-06
				Phenanthrene	2E-01	ug/L	3.4E-10	mg/kg-day	N/A	N/A	N/A	2.4E-08	mg/kg-day	3.0E-02	mg/kg-day	8.0E-07
				1,2,4-Trichlorobenzene	2E-01	ug/L	4.2E-10	mg/kg-day	3.6E-03	(mg/kg-day) $^{-1}$	1.5E-12	2.9E-08	mg/kg-day	1.0E-02	mg/kg-day	2.9E-06
				1,2-Dichlorobenzene	8E-01	ug/L	1.3E-09	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	9.0E-02	mg/kg-day	1.0E-06
				1,3-Dichlorobenzene	3E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	2.0E-02	mg/kg-day	1.8E-06
				1,4-Dichlorobenzene	9E-01	ug/L	1.6E-09	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	8.7E-12	1.1E-07	mg/kg-day	7.0E-02	mg/kg-day	1.6E-06
				2-Butanone	1E+00	ug/L	2.3E-09	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	6.0E-01	mg/kg-day	2.6E-07
				Benzene	1E+02	ug/L	1.8E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	9.9E-09	1.3E-05	mg/kg-day	4.0E-03	mg/kg-day	3.2E-03
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chlorobenzene	6E+00	ug/L	9.6E-09	mg/kg-day	N/A	N/A	N/A	6.7E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Chloroethane	5E-01	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	1.0E-01	mg/kg-day	5.7E-07
				Chloroform	6E-01	ug/L	1.1E-09	mg/kg-day	3.1E-02	(mg/kg-day) $^{-1}$	3.4E-11	7.8E-08	mg/kg-day	1.0E-02	mg/kg-day	7.8E-06
				Ethylbenzene	1E+00	ug/L	2.2E-09	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	2.5E-11	1.6E-07	mg/kg-day	1.0E-01	mg/kg-day	1.6E-06
				Isopropylbenzene	1E+01	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	1.0E-01	mg/kg-day	1.2E-05
				Methyl tert-butyl ether	2E+00	ug/L	2.8E-09	mg/kg-day	1.8E-03	(mg/kg-day) $^{-1}$	5.1E-12	2.0E-07	mg/kg-day	3.0E-01	mg/kg-day	6.6E-07
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	8.0E-02	mg/kg-day	8.8E-07
				Trichloroethene	6E-01	ug/L	1.0E-09	mg/kg-day	1.3E-02	(mg/kg-day) $^{-1}$	1.3E-11	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	1.1E-09	mg/kg-day	7.2E-01	(mg/kg-day) $^{-1}$	7.9E-10	7.7E-08	mg/kg-day	3.0E-03	mg/kg-day	2.6E-05
				Xylene (Total)	2E+00	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	2.0E-01	mg/kg-day	1.2E-06
				Aroclor-1242	3E-01	ug/L	5.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.7E-10	4.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1248	5E-02	ug/L	9.2E-11	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.2E-11	6.4E-09	mg/kg-day	2.0E-05	mg/kg-day	3.2E-04
				Aroclor-1254	6E-01	ug/L	1.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-09	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				4,4'-DDD	3E-03	ug/L	4.8E-12	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.1E-12	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	6.8E-12	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.3E-12	4.8E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	4.7E-12	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.6E-12	3.3E-10	mg/kg-day	5.0E-04	mg/kg-day	6.6E-07
				Aldrin	2E-03	ug/L	3.3E-12	mg/kg-day	1.7E+01	(mg/kg-day) $^{-1}$	5.6E-11	2.3E-10	mg/kg-day	3.0E-05	mg/kg-day	7.7E-06

TABLE 7.24.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	2E-03	ug/L	3.2E-12	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	2.0E-11	2.3E-10	mg/kg-day	8.0E-03	mg/kg-day	2.8E-08
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	1.5E-11	mg/kg-day	1.1E+00	(mg/kg-day) $^{-1}$	1.6E-11	1.0E-09	mg/kg-day	3.0E-04	mg/kg-day	3.4E-06
				Heptachlor	2E-03	ug/L	3.3E-12	mg/kg-day	4.5E+00	(mg/kg-day) $^{-1}$	1.5E-11	2.3E-10	mg/kg-day	5.0E-04	mg/kg-day	4.6E-07
				Aluminum	1E+03	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	1.0E+00	mg/kg-day	1.6E-04
				Arsenic	3E+01	ug/L	5.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.6E-08	3.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (drinking water)	2E+00	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	5.0E-04	mg/kg-day	5.3E-04
				Chromium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-03	mg/kg-day	6.8E-05
				Cobalt	8E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Iron	2E+04	ug/L	4.2E-05	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03
				Lead	3E+00	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	1.8E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	2.4E-02	mg/kg-day	5.1E-03
				Nickel	9E+00	ug/L	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.4E-05
				Silver	2E+00	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	5.0E-03	mg/kg-day	4.8E-05
				Thallium	3E+00	ug/L	4.6E-09	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	8.0E-05	mg/kg-day	4.0E-03
				Zinc	3E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
			Exp. Route Total								9E-08					4E-02
			Dermal													
				1,4-Dioxane	7E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	3.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.4E-10	2.2E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Carbazole	3E-01	ug/L	N/A	N/A	2.0E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	4.0E-03	mg/kg-day	6.6E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	N/A	N/A	3.6E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				1,2-Dichlorobenzene	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.0E-02	mg/kg-day	N/A
				1,3-Dichlorobenzene	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	9E-01	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.24.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chloroethane	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	6E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Isopropylbenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Methyl tert-butyl ether	2E+00	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A
				Trichloroethene	6E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A
				Aroclor-1242	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	2E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	N/A	N/A	1.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Heptachlor	2E-03	ug/L	N/A	N/A	4.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	3E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	2E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-10					2E-04
		Exposure Point Total									9E-08					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.24.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
			Exp. Route Total								8E-06					9E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.6E-06	mg/kg-day	1.0E-02	mg/kg-day	9.6E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.0E-04
				Chromium	3E+00	ug/L	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								2E-08					3E-03
		Exposure Point Total									2E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04
				Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04
				Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									4E-06					3E-02

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.25.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.25.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.25.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-02	mg/kg-day	4.8E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.4E-09	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	7.5E-05	mg/kg-day	6.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	1.8E-04	mg/kg-day	5.5E-05
			Exp. Route Total								8E-09					1E-03
		Exposure Point Total									8E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04

TABLE 7.25.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05
			Exp. Route Total								3E-07					5E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					5E-03
		Exposure Point Total									1E-06					1E-02

TABLE 7.25.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
			Exp. Route Total								8E-06					9E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.0E-08	5.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	5.0E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	1.0E-02	mg/kg-day	1.5E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	3E+00	ug/L	5.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	7.5E-05	mg/kg-day	2.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	3.7E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.7E-04
			Exp. Route Total								3E-08					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	3.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.2E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	2.5E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.4E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	5.2E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.2E-10	1.5E-10	mg/kg-day	5.0E-05	mg/kg-day	3.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Arsenic	2E+00	ug/L	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Cadmium (other media)	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+00	ug/L	7.3E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Iron	2E+03	ug/L	4.2E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	7.0E-01	mg/kg-day	1.8E-04
				Lead	7E+00	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	7.0E-02	mg/kg-day	4.2E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.5E-08	mg/kg-day	1.8E-04	mg/kg-day	4.7E-04
			Exp. Route Total								8E-08					1E-02
		Exposure Point Total									1E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04
				Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04
				Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									4E-06					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.26.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.26.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.26.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	7.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-08	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.5E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-02	mg/kg-day	7.3E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	3E+00	ug/L	2.2E-08	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	7.5E-05	mg/kg-day	1.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.6E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.8E-04	mg/kg-day	8.4E-05
			Exp. Route Total								1E-08					2E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-08	5.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.5E-10	4.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.1E-12	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.2E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.26.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	2.1E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.4E-10	7.5E-11	mg/kg-day	5.0E-05	mg/kg-day	1.5E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-02	mg/kg-day	2.0E-03
				Arsenic	2E+00	ug/L	1.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.3E-08	5.4E-08	mg/kg-day	3.0E-04	mg/kg-day	1.8E-04
				Cadmium (other media)	7E-01	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.4E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	8E-01	ug/L	7.4E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	3.0E-04	mg/kg-day	8.7E-05
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Iron	2E+03	ug/L	1.8E-05	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	7.0E-01	mg/kg-day	8.8E-05
				Lead	7E+00	ug/L	6.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	4.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	7.0E-02	mg/kg-day	2.1E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.8E-04	mg/kg-day	2.3E-04
			Exp. Route Total								4E-08					5E-03
		Exposure Point Total									5E-08					7E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05

TABLE 7.26.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05
			Exp. Route Total								3E-07					5E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					5E-03
		Exposure Point Total									1E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
			Exp. Route Total								8E-06					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.7E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-09					3E-03
		Exposure Point Total									6E-09					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
				Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03
				Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									3E-06					5E-02

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.27.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.8E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.9E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.7E-10	3.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-11	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.6E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	4.0E-02	mg/kg-day	7.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	7.0E-01	mg/kg-day	4.8E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	1.0E-04	mg/kg-day	7.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.9E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.2E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.27.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.2E-08	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.5E-03
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									4E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.27.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.9E-09	2.1E-09	mg/kg-day	5.0E-05	mg/kg-day	4.2E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	7.5E-05	mg/kg-day	7.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-09					1E-03
		Exposure Point Total									3E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04
				Dieldrin	1E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	5E+03	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04
				Antimony	5E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04
				Arsenic	5E+00	mg/kg	4.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03

TABLE 7.27.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04
			Exp. Route Total								3E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-07					6E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.27.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
			Exp. Route Total								8E-06					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	1.0E-02	mg/kg-day	1.8E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.4E-04
				Chromium	3E+00	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	7.5E-05	mg/kg-day	2.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	1.8E-04	mg/kg-day	2.1E-04
			Exp. Route Total								9E-09					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-09	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.3E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	3.0E-02	mg/kg-day	4.8E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	2.6E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-10	3.0E-10	mg/kg-day	5.0E-05	mg/kg-day	6.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	7.0E-06	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	1.0E-02	mg/kg-day	8.1E-03
				Arsenic	2E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.8E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				Cadmium (other media)	7E-01	ug/L	7.2E-09	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	2.5E-05	mg/kg-day	3.4E-03
				Chromium	3E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	7.5E-05	mg/kg-day	5.7E-03
				Cobalt	8E-01	ug/L	8.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Iron	2E+03	ug/L	2.1E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	7.0E-01	mg/kg-day	3.5E-04
				Lead	7E+00	ug/L	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	5.1E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	7.0E-02	mg/kg-day	8.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.8E-04	mg/kg-day	9.3E-04
			Exp. Route Total								7E-08					2E-02
		Exposure Point Total									8E-08					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
				Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03
				Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									3E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.28.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.8E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.9E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.7E-10	3.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-11	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.4E-09	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.6E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	4.0E-02	mg/kg-day	7.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	7.0E-01	mg/kg-day	4.8E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	1.0E-04	mg/kg-day	7.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
			Exp. Route Total								1E-06					3E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.9E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.2E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.2E-08	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.5E-03
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									4E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.6E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	7.7E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-02	mg/kg-day	8.9E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	7.9E-10	mg/kg-day	N/A	N/A	N/A	9.2E-09	mg/kg-day	2.5E-05	mg/kg-day	3.7E-04
				Chromium	3E+00	ug/L	8.0E-09	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	1.8E-04	mg/kg-day	1.0E-04
			Exp. Route Total								5E-09					3E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	9.1E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	7.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	7.5E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.6E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	6.2E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.4E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	1.3E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.1E-10	1.5E-10	mg/kg-day	5.0E-05	mg/kg-day	3.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Arsenic	2E+00	ug/L	9.2E-09	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Cadmium (other media)	7E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Iron	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	7.0E-01	mg/kg-day	1.8E-04
				Lead	7E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	7.0E-02	mg/kg-day	4.2E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	7.3E-09	mg/kg-day	N/A	N/A	N/A	8.5E-08	mg/kg-day	1.8E-04	mg/kg-day	4.7E-04
			Exp. Route Total								4E-08					1E-02
		Exposure Point Total									4E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04
				Dieldrin	1E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	5E+03	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04
				Antimony	5E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04
				Arsenic	5E+00	mg/kg	4.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04
			Exp. Route Total								3E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-07					6E-03
		Exposure Point Total									1E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.28.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.29.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.4E-06	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.0E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.4E-09	9.2E-07	mg/kg-day	2.0E-02	mg/kg-day	4.6E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.1E-10	8.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.4E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	9.5E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-02	mg/kg-day	9.3E-05
				Aroclor-1248	6E+00	mg/kg	8.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-06	2.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.3E-01
				Aroclor-1254	5E-01	mg/kg	7.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	2E-02	mg/kg	2.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.4E-08	8.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.6E-04
				Dioxin TEQ	6E-05	mg/kg	8.2E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.1E-06	2.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-06	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-03	mg/kg-day	4.4E-03
				Chromium	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	4E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	3E+04	mg/kg	3.8E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	4.0E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	8.0E-05	mg/kg-day	5.7E-03
				Vanadium	3E+01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	9E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
			Exp. Route Total								1E-05					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.1E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.2E-10	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.29.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.8E-05
				Aroclor-1248	6E+00	mg/kg	4.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.7E-07	1.4E-06	mg/kg-day	2.0E-05	mg/kg-day	7.0E-02
				Aroclor-1254	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.5E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.8E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-08	3.2E-09	mg/kg-day	5.0E-05	mg/kg-day	6.5E-05
				Dioxin TEQ	6E-05	mg/kg	9.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.3E-07	2.9E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	1E+01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					8E-02
		Exposure Point Total									1E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	4.1E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	2.2E-09	1.2E-06	mg/kg-day	7.0E-02	mg/kg-day	1.7E-05
				Benzene	8E-01	ug/L	1.4E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	7.9E-09	4.2E-07	mg/kg-day	4.0E-03	mg/kg-day	1.0E-04
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.29.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	3.2E-08	mg/kg-day	5.0E-05	mg/kg-day	6.5E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	6.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	6.0E-08	1.9E-08	mg/kg-day	1.3E-05	mg/kg-day	1.5E-03
				Aluminum	2E+04	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	1.0E-02	mg/kg-day	3.8E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	2.5E-05	mg/kg-day	1.5E-02
				Chromium	2E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.5E-05	mg/kg-day	1.3E-01
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	5.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	7.0E-02	mg/kg-day	2.4E-04
				Mercury (water)	4E-01	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	8.3E-09	mg/kg-day	2.1E-05	mg/kg-day	4.0E-04
				Vanadium	5E+01	ug/L	3.8E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.8E-04	mg/kg-day	6.1E-03
			Exp. Route Total								2E-07					2E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	7.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	3.0E-02	mg/kg-day	4.8E-07
				Benzo(k)fluoranthene	3E-01	ug/L	5.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.1E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	6.4E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	4.7E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-09	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				1,4-Dichlorobenzene	5E-01	ug/L	1.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	6.3E-11	3.4E-08	mg/kg-day	7.0E-02	mg/kg-day	4.8E-07
				Benzene	8E-01	ug/L	1.7E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	9.4E-10	5.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Aroclor-1260	3E-01	ug/L	6.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.4E-04
				4,4'-DDD	3E-02	ug/L	5.4E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.3E-10	1.6E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	3.2E-10	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.1E-10	9.4E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.29.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-09	8.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	7.9E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	7.2E-10	2.3E-10	mg/kg-day	1.3E-05	mg/kg-day	1.8E-05
				Aluminum	2E+04	ug/L	3.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E-02	mg/kg-day	1.1E-01
				Arsenic	1E+01	ug/L	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	7.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	2E+01	ug/L	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	2.5E-05	mg/kg-day	4.1E-02
				Chromium	2E+02	ug/L	4.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.5E-05	mg/kg-day	1.8E-01
				Cobalt	9E+00	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Copper	4E+02	ug/L	9.2E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.7E-04
				Cyanide	1E+01	ug/L	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Iron	5E+04	ug/L	9.7E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead	3E+02	ug/L	5.9E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (water)	4E-01	ug/L	7.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.1E-05	mg/kg-day	1.1E-03
				Vanadium	5E+01	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.8E-04	mg/kg-day	1.7E-02
			Exp. Route Total								4E-07					4E-01
		Exposure Point Total									7E-07					5E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.9E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.5E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.2E-08	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-07	4.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.6E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.4E-05
				Aroclor-1242	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Aroclor-1254	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.3E-08	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03
				Aroclor-1260	1E-01	mg/kg	8.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-08	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	4.0E-04	mg/kg-day	9.4E-04
				Arsenic	4E+01	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-06	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02
				Cadmium (other media)	1E+01	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	1.0E-03	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.6E-03
				Cobalt	5E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03

TABLE 7.29.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	7.0E-01	mg/kg-day	6.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.8E-04
				Mercury (other media)	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	1.0E-04	mg/kg-day	6.0E-04
				Thallium	7E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	2E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
			Exp. Route Total								5E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-06	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.8E-08	9.9E-06	mg/kg-day	2.0E-02	mg/kg-day	5.0E-04
				Carbazole	2E-01	mg/kg	4.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.2E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-02	mg/kg-day	4.0E-05
				Aroclor-1242	2E-01	mg/kg	5.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.6E-03
				Aroclor-1254	3E-01	mg/kg	6.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.7E-03
				Aroclor-1260	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.2E-08	7.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Dieldrin	2E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	7.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-06					4E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.29.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.2E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.2E-10	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Carbazole	2E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	9.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.1E-08	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	6E+00	mg/kg	1.8E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-07	6.3E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				Aroclor-1254	5E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Aroclor-1260	2E-01	mg/kg	5.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.3E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	9.2E-04
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	4.1E-05
				Dioxin TEQ	3E-05	mg/kg	9.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.2E-07	3.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	9.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	4.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.8E-07	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.3E-03
				Cadmium (other media)	1E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-03	mg/kg-day	1.1E-03
				Chromium	1E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	4.0E-02	mg/kg-day	5.1E-04
				Iron	3E+04	mg/kg	7.9E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.0E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	5E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.0E-04	mg/kg-day	5.1E-04
				Thallium	1E+00	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.4E-03
				Vanadium	3E+01	mg/kg	8.5E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.2E-04
				Zinc	9E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.3E-05	mg/kg-day	3.0E-01	mg/kg-day	3.1E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06
				Carbazole	2E-01	mg/kg	6.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.3E-08	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.29.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1248	6E+00	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-07	7.0E-07	mg/kg-day	2.0E-05	mg/kg-day	3.5E-02
				Aroclor-1254	5E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-08	6.2E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Aroclor-1260	2E-01	mg/kg	5.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.9E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03
				Dieldrin	2E-02	mg/kg	4.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.4E-09	1.6E-09	mg/kg-day	5.0E-05	mg/kg-day	3.2E-05
				Dioxin TEQ	3E-05	mg/kg	2.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.9E-08	7.7E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	1E+01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.5E-05	mg/kg-day	3.5E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-06					4E-02
		Exposure Point Total									3E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	8.8E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	4.8E-10	3.1E-07	mg/kg-day	7.0E-02	mg/kg-day	4.4E-06
				Benzene	6E-01	ug/L	4.2E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.3E-09	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.7E-05
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.29.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	4.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.4E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.7E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.5E-08	9.6E-09	mg/kg-day	1.3E-05	mg/kg-day	7.4E-04
				Aluminum	2E+04	ug/L	5.4E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	1.0E-02	mg/kg-day	1.9E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	5.2E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	7.3E-03
				Chromium	2E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.5E-05	mg/kg-day	6.5E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.5E-06	mg/kg-day	7.0E-02	mg/kg-day	1.2E-04
				Mercury (water)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.1E-05	mg/kg-day	2.0E-04
				Vanadium	5E+01	ug/L	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.8E-04	mg/kg-day	3.0E-03
			Exp. Route Total								1E-07					1E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	1.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.2E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	6.3E-10	mg/kg-day	N/A	N/A	N/A	2.2E-09	mg/kg-day	3.0E-02	mg/kg-day	7.3E-08
				Benzo(k)fluoranthene	3E-01	ug/L	2.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-10	8.1E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	2.7E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.0E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	1.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-09	5.9E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08
				1,4-Dichlorobenzene	3E-01	ug/L	2.5E-09	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.4E-11	8.8E-09	mg/kg-day	7.0E-02	mg/kg-day	1.3E-07
				Benzene	6E-01	ug/L	5.1E-09	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.8E-10	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Aroclor-1260	3E-01	ug/L	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	9.4E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				4,4'-DDD	1E-02	ug/L	1.3E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	3.2E-11	4.7E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	1.3E-10	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.6E-11	4.7E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.29.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	1.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-09	4.4E-10	mg/kg-day	5.0E-05	mg/kg-day	8.8E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	3.3E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	3.0E-10	1.2E-10	mg/kg-day	1.3E-05	mg/kg-day	8.9E-06
				Aluminum	2E+04	ug/L	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	1.0E-02	mg/kg-day	5.3E-02
				Arsenic	1E+01	ug/L	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	2E+01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	2.5E-05	mg/kg-day	2.0E-02
				Chromium	2E+02	ug/L	1.9E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.5E-05	mg/kg-day	9.0E-02
				Cobalt	9E+00	ug/L	8.2E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Copper	4E+02	ug/L	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04
				Cyanide	1E+01	ug/L	9.5E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Iron	5E+04	ug/L	4.1E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03
				Lead	3E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	6.8E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-02	mg/kg-day	3.4E-04
				Mercury (water)	4E-01	ug/L	3.3E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.1E-05	mg/kg-day	5.5E-04
				Vanadium	5E+01	ug/L	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	1.8E-04	mg/kg-day	8.4E-03
			Exp. Route Total								2E-07					2E-01
		Exposure Point Total									3E-07					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	6.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.1E-10	3.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.5E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05
				Carbazole	2E-01	mg/kg	3.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.0E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-08	1.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.1E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	9.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	3.0E-02	mg/kg-day	3.5E-06
				Aroclor-1242	2E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04
				Aroclor-1254	3E-01	mg/kg	4.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.5E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.9E-04
				Aroclor-1260	1E-01	mg/kg	1.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-09	6.1E-09	mg/kg-day	2.0E-05	mg/kg-day	3.1E-04
				Dieldrin	2E-02	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.9E-09	8.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.7E-05
				Aluminum	9E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	1.0E+00	mg/kg-day	4.4E-04
				Antimony	2E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	4.0E-04	mg/kg-day	2.4E-04
				Arsenic	4E+01	mg/kg	5.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.5E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.6E-03
				Cadmium (other media)	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	3.0E-03	mg/kg-day	2.4E-03
				Cobalt	5E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-04	mg/kg-day	8.4E-04
				Copper	2E+02	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	4.0E-02	mg/kg-day	2.6E-04

TABLE 7.29.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	1.9E-04
				Mercury (other media)	3E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	7E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.5E-04
				Vanadium	2E+01	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.5E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.5E-07	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				Carbazole	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.0E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05
				Aroclor-1242	2E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	7.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Aroclor-1254	3E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.8E-08	9.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.4E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	7.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-06	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.30.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.4E-06	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.0E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.4E-09	9.2E-07	mg/kg-day	2.0E-02	mg/kg-day	4.6E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.1E-10	8.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.4E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	9.5E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-02	mg/kg-day	9.3E-05
				Aroclor-1248	6E+00	mg/kg	8.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-06	2.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.3E-01
				Aroclor-1254	5E-01	mg/kg	7.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	2E-02	mg/kg	2.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.4E-08	8.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.6E-04
				Dioxin TEQ	6E-05	mg/kg	8.2E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.1E-06	2.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-06	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-03	mg/kg-day	4.4E-03
				Chromium	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	4E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	3E+04	mg/kg	3.8E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	4.0E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	8.0E-05	mg/kg-day	5.7E-03
				Vanadium	3E+01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	9E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
			Exp. Route Total								1E-05					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.1E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.2E-10	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.30.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.8E-05
				Aroclor-1248	6E+00	mg/kg	4.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.7E-07	1.4E-06	mg/kg-day	2.0E-05	mg/kg-day	7.0E-02
				Aroclor-1254	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.5E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.8E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-08	3.2E-09	mg/kg-day	5.0E-05	mg/kg-day	6.5E-05
				Dioxin TEQ	6E-05	mg/kg	9.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.3E-07	2.9E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	1E+01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					8E-02
		Exposure Point Total									1E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	2.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.4E-09	7.8E-07	mg/kg-day	7.0E-02	mg/kg-day	1.1E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.30.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	7.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-07	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.3E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	4.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.0E-08	1.3E-08	mg/kg-day	1.3E-05	mg/kg-day	9.8E-04
				Aluminum	2E+04	ug/L	8.6E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	1.0E-02	mg/kg-day	2.5E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	8.3E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	2.5E-05	mg/kg-day	9.6E-03
				Chromium	2E+02	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	7.5E-05	mg/kg-day	8.5E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	1.8E-04	mg/kg-day	4.0E-03
			Exp. Route Total								2E-07					1E-01
		Exposure Point Total									2E-07					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.9E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.5E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.2E-08	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-07	4.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.6E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.4E-05
				Aroclor-1242	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Aroclor-1254	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.3E-08	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03
				Aroclor-1260	1E-01	mg/kg	8.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-08	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	4.0E-04	mg/kg-day	9.4E-04
				Arsenic	4E+01	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-06	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02

TABLE 7.30.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	1.0E-03	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.6E-03
				Cobalt	5E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	2E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	7.0E-01	mg/kg-day	6.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.8E-04
				Mercury (other media)	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	1.0E-04	mg/kg-day	6.0E-04
				Thallium	7E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	2E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
			Exp. Route Total								5E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-06	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.8E-08	9.9E-06	mg/kg-day	2.0E-02	mg/kg-day	5.0E-04
				Carbazole	2E-01	mg/kg	4.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.6E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.2E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-02	mg/kg-day	4.0E-05
				Aroclor-1242	2E-01	mg/kg	5.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.6E-03
				Aroclor-1254	3E-01	mg/kg	6.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.7E-03
				Aroclor-1260	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.2E-08	7.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Dieldrin	2E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	7.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-06					4E-02
		Exposure Point Total									1E-05					1E-01

TABLE 7.30.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.30.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.2E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.2E-10	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Carbazole	2E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	9.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.1E-08	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	6E+00	mg/kg	1.8E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-07	6.3E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				Aroclor-1254	5E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Aroclor-1260	2E-01	mg/kg	5.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.3E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	9.2E-04
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	4.1E-05
				Dioxin TEQ	3E-05	mg/kg	9.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.2E-07	3.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	9.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	4.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.8E-07	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.3E-03
				Cadmium (other media)	1E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-03	mg/kg-day	1.1E-03
				Chromium	1E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	4.0E-02	mg/kg-day	5.1E-04
				Iron	3E+04	mg/kg	7.9E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.0E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	5E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.0E-04	mg/kg-day	5.1E-04
				Thallium	1E+00	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.4E-03
				Vanadium	3E+01	mg/kg	8.5E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.2E-04
				Zinc	9E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.3E-05	mg/kg-day	3.0E-01	mg/kg-day	3.1E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-09	8.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06
				Carbazole	2E-01	mg/kg	6.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.3E-08	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.30.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1248	6E+00	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-07	7.0E-07	mg/kg-day	2.0E-05	mg/kg-day	3.5E-02
				Aroclor-1254	5E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-08	6.2E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Aroclor-1260	2E-01	mg/kg	5.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.9E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03
				Dieldrin	2E-02	mg/kg	4.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.4E-09	1.6E-09	mg/kg-day	5.0E-05	mg/kg-day	3.2E-05
				Dioxin TEQ	3E-05	mg/kg	2.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.9E-08	7.7E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	1E+01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.5E-05	mg/kg-day	3.5E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-06					4E-02
		Exposure Point Total									3E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	5.8E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	3.1E-10	2.0E-07	mg/kg-day	7.0E-02	mg/kg-day	2.9E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.30.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.9E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	1.8E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.6E-08	6.3E-09	mg/kg-day	1.3E-05	mg/kg-day	4.9E-04
				Aluminum	2E+04	ug/L	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	2.5E-05	mg/kg-day	4.8E-03
				Chromium	2E+02	ug/L	9.2E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	7.5E-05	mg/kg-day	4.3E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	1.8E-04	mg/kg-day	2.0E-03
			Exp. Route Total								7E-08					6E-02
		Exposure Point Total									7E-08					6E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	6.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.1E-10	3.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.5E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05
				Carbazole	2E-01	mg/kg	3.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.0E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-08	1.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.1E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	9.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	3.0E-02	mg/kg-day	3.5E-06
				Aroclor-1242	2E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04
				Aroclor-1254	3E-01	mg/kg	4.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.5E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.9E-04
				Aroclor-1260	1E-01	mg/kg	1.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-09	6.1E-09	mg/kg-day	2.0E-05	mg/kg-day	3.1E-04
				Dieldrin	2E-02	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.9E-09	8.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.7E-05
				Aluminum	9E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	1.0E+00	mg/kg-day	4.4E-04
				Antimony	2E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	4.0E-04	mg/kg-day	2.4E-04
				Arsenic	4E+01	mg/kg	5.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	8.5E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.6E-03

TABLE 7.30.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	3.0E-03	mg/kg-day	2.4E-03
				Cobalt	5E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-04	mg/kg-day	8.4E-04
				Copper	2E+02	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	4.0E-02	mg/kg-day	2.6E-04
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	1.9E-04
				Mercury (other media)	3E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	7E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.5E-04
				Vanadium	2E+01	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.5E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.5E-07	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				Carbazole	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.0E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05
				Aroclor-1242	2E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	7.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Aroclor-1254	3E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.8E-08	9.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.4E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	7.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-06	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									4E-06					4E-02

TABLE 7.30.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-06	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.2E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-10	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	9.4E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1248	6E+00	mg/kg	4.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.7E-07	5.0E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01
				Aroclor-1254	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.6E-08	4.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Aroclor-1260	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.4E-03
				Dieldrin	2E-02	mg/kg	1.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.2E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Dioxin TEQ	6E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.2E-04	mg/kg-day	N/A	N/A	N/A	7.2E-03	mg/kg-day	1.0E+00	mg/kg-day	7.2E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-03	mg/kg-day	8.9E-03
				Chromium	1E+02	mg/kg	8.6E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.4E-02
				Cobalt	4E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.1E-03
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	2.2E-02	mg/kg-day	7.0E-01	mg/kg-day	3.2E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	7.0E-02	mg/kg-day	8.0E-03
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.1E-02
				Vanadium	3E+01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-03	mg/kg-day	3.4E-03
				Zinc	9E+02	mg/kg	6.4E-05	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03
			Exp. Route Total								1E-05					4E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.9E-06	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.4E-08	7.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	8.1E-05
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.5E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	8.2E-09	mg/kg-day	N/A	N/A	N/A	9.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04
				Aroclor-1248	6E+00	mg/kg	5.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-06	6.2E-06	mg/kg-day	2.0E-05	mg/kg-day	3.1E-01
				Aroclor-1254	5E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.4E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02
				Aroclor-1260	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.1E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.9E-04
				Dioxin TEQ	6E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.4E-07	1.3E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	7.8E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-06					4E-01
		Exposure Point Total									2E-05					8E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	1.2E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	6.7E-10	1.4E-06	mg/kg-day	7.0E-02	mg/kg-day	2.1E-05
				Benzene	8E-01	ug/L	4.4E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.4E-09	5.1E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.4E-08	3.9E-08	mg/kg-day	5.0E-05	mg/kg-day	7.9E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.0E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.8E-08	2.3E-08	mg/kg-day	1.3E-05	mg/kg-day	1.8E-03
				Aluminum	2E+04	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	1.0E-02	mg/kg-day	4.6E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	2.5E-05	mg/kg-day	1.8E-02
				Chromium	2E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.5E-05	mg/kg-day	1.6E-01
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.8E-04	mg/kg-day	7.4E-03
			Exp. Route Total								8E-08					2E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-09	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	3.0E-02	mg/kg-day	9.6E-07
				Benzo(k)fluoranthene	3E-01	ug/L	2.8E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.1E-10	3.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	7.1E-11	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	2.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.5E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	3.0E-02	mg/kg-day	8.3E-07
				1,4-Dichlorobenzene	5E-01	ug/L	5.8E-09	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	3.1E-11	6.8E-08	mg/kg-day	7.0E-02	mg/kg-day	9.7E-07
				Benzene	8E-01	ug/L	8.6E-09	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	4.7E-10	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Aroclor-1260	3E-01	ug/L	3.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.4E-09	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				4,4'-DDD	3E-02	ug/L	2.7E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	6.4E-11	3.1E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	1.6E-10	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	5.5E-11	1.9E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	4.0E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	3.6E-10	4.6E-10	mg/kg-day	1.3E-05	mg/kg-day	3.6E-05
				Aluminum	2E+04	ug/L	1.8E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	1.0E-02	mg/kg-day	2.1E-01
				Arsenic	1E+01	ug/L	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03
				Cadmium (other media)	2E+01	ug/L	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	2.5E-05	mg/kg-day	8.1E-02
				Chromium	2E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.5E-05	mg/kg-day	3.6E-01
				Cobalt	9E+00	ug/L	9.9E-08	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.8E-03
				Copper	4E+02	ug/L	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03
				Cyanide	1E+01	ug/L	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05
				Iron	5E+04	ug/L	4.9E-04	mg/kg-day	N/A	N/A	N/A	5.7E-03	mg/kg-day	7.0E-01	mg/kg-day	8.1E-03
				Lead	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (water)	4E-01	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.6E-08	mg/kg-day	2.1E-05	mg/kg-day	2.2E-03
				Vanadium	5E+01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.8E-04	mg/kg-day	3.4E-02
			Exp. Route Total								3E-07					7E-01
		Exposure Point Total									4E-07					9E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.9E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	7.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-08	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04
				Carbazole	2E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	8.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.9E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	9.9E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Aroclor-1254	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Aroclor-1260	1E-01	mg/kg	4.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.4E-09	4.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	2E+00	mg/kg	6.5E-08	mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.9E-03
				Arsenic	4E+01	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.3E-02
				Cadmium (other media)	1E+01	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03
				Chromium	1E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	5E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Copper	2E+02	mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	8.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	9.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-05	mg/kg-day	3.6E-03
				Vanadium	2E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03
			Exp. Route Total								4E-06					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.5E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-08	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.7E-10	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1242	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03
				Aroclor-1254	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Dieldrin	2E-02	mg/kg	7.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.6E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Cadmium (other media)	1E+01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					5E-02
		Exposure Point Total									7E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.31.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.3E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.5E-10	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	2E-01	mg/kg	3.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.6E-11	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1248	6E+00	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-07	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.3E-02
				Aroclor-1254	5E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	2E-01	mg/kg	3.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-09	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	2E-02	mg/kg	3.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.6E-09	4.1E-09	mg/kg-day	5.0E-05	mg/kg-day	8.1E-05
				Dioxin TEQ	3E-05	mg/kg	5.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	7.2E-08	6.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-07	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	1E+02	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.4E-03
				Cobalt	4E+00	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Copper	2E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	3E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.9E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	2.0E-03
				Mercury (other media)	5E-01	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	1E+00	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	8.0E-05	mg/kg-day	2.8E-03
				Vanadium	3E+01	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.0E-03	mg/kg-day	8.5E-04
				Zinc	9E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.2E-04
			Exp. Route Total								2E-06					1E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.9E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.8E-10	8.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.1E-05
				Carbazole	2E-01	mg/kg	8.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-08	4.7E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	6E+00	mg/kg	2.7E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-07	3.1E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Aroclor-1254	5E-01	mg/kg	2.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	2E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.8E-09	9.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.6E-03
				Dieldrin	2E-02	mg/kg	6.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.8E-09	7.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Dioxin TEQ	3E-05	mg/kg	2.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.8E-08	3.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	1E+01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					2E-01
		Exposure Point Total									6E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	3.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.7E-10	3.8E-07	mg/kg-day	7.0E-02	mg/kg-day	5.4E-06
				Benzene	6E-01	ug/L	1.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	8.6E-10	1.8E-07	mg/kg-day	4.0E-03	mg/kg-day	4.5E-05
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	2.0E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	1.0E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	9.2E-09	1.2E-08	mg/kg-day	1.3E-05	mg/kg-day	9.0E-04
				Aluminum	2E+04	ug/L	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E-02	mg/kg-day	2.3E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	2.5E-05	mg/kg-day	8.9E-03
				Chromium	2E+02	ug/L	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.5E-05	mg/kg-day	7.9E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	5.8E-08	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	1.8E-04	mg/kg-day	3.7E-03
			Exp. Route Total								4E-08					1E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	1.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	3.8E-10	mg/kg-day	N/A	N/A	N/A	4.4E-09	mg/kg-day	3.0E-02	mg/kg-day	1.5E-07
				Benzo(k)fluoranthene	3E-01	ug/L	1.4E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.1E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	1.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-09	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07
				1,4-Dichlorobenzene	3E-01	ug/L	1.5E-09	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	8.2E-12	1.8E-08	mg/kg-day	7.0E-02	mg/kg-day	2.5E-07
				Benzene	6E-01	ug/L	3.1E-09	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	1.7E-10	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	8.9E-06
				Aroclor-1260	3E-01	ug/L	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.4E-04
				4,4'-DDD	1E-02	ug/L	8.0E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.9E-11	9.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	8.1E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.7E-11	9.4E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	7.5E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-09	8.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.0E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.8E-10	2.3E-10	mg/kg-day	1.3E-05	mg/kg-day	1.8E-05
				Aluminum	2E+04	ug/L	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E-02	mg/kg-day	1.1E-01
				Arsenic	1E+01	ug/L	6.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.0E-08	7.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	2E+01	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	2.5E-05	mg/kg-day	4.1E-02
				Chromium	2E+02	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.5E-05	mg/kg-day	1.8E-01
				Cobalt	9E+00	ug/L	4.9E-08	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Copper	4E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.7E-04
				Cyanide	1E+01	ug/L	5.7E-08	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Iron	5E+04	ug/L	2.4E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead	3E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (water)	4E-01	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.1E-05	mg/kg-day	1.1E-03
				Vanadium	5E+01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.8E-04	mg/kg-day	1.7E-02
			Exp. Route Total								1E-07					4E-01
		Exposure Point Total									2E-07					5E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-09	7.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-09	2.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Carbazole	2E-01	mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-11	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.3E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06
				Aroclor-1242	2E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1254	3E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	3.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.1E-04
				Dieldrin	2E-02	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.3E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.4E-05
				Aluminum	9E+03	mg/kg	7.6E-05	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Antimony	2E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-04	mg/kg-day	4.7E-04
				Arsenic	4E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.1E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	1E+01	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-03	mg/kg-day	4.8E-03
				Cobalt	5E+00	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	4.0E-02	mg/kg-day	5.2E-04

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	3.9E-04
				Mercury (other media)	3E-01	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	7E-01	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.7E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	4.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.8E-09	5.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.8E-04
				Carbazole	2E-01	mg/kg	6.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.4E-10	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1242	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-09	8.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Aroclor-1254	3E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	1E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.7E-09	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.8E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.8E-07	3.0E-06	mg/kg-day	3.0E-04	mg/kg-day	9.9E-03
				Cadmium (other media)	1E+01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.31.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.32.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-06	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.2E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.2E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-10	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	9.4E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1248	6E+00	mg/kg	4.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.7E-07	5.0E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01
				Aroclor-1254	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.6E-08	4.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Aroclor-1260	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.4E-03
				Dieldrin	2E-02	mg/kg	1.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.2E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Dioxin TEQ	6E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.2E-04	mg/kg-day	N/A	N/A	N/A	7.2E-03	mg/kg-day	1.0E+00	mg/kg-day	7.2E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-03	mg/kg-day	8.9E-03
				Chromium	1E+02	mg/kg	8.6E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.4E-02
				Cobalt	4E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.1E-03
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	2.2E-02	mg/kg-day	7.0E-01	mg/kg-day	3.2E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	7.0E-02	mg/kg-day	8.0E-03
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.1E-02
				Vanadium	3E+01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-03	mg/kg-day	3.4E-03
				Zinc	9E+02	mg/kg	6.4E-05	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03
			Exp. Route Total								1E-05					4E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.9E-06	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.4E-08	7.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	8.1E-05
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.5E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	8.2E-09	mg/kg-day	N/A	N/A	N/A	9.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.32.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04
				Aroclor-1248	6E+00	mg/kg	5.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-06	6.2E-06	mg/kg-day	2.0E-05	mg/kg-day	3.1E-01
				Aroclor-1254	5E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.4E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02
				Aroclor-1260	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.1E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.9E-04
				Dioxin TEQ	6E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.4E-07	1.3E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	7.8E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-06					4E-01
		Exposure Point Total									2E-05					8E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	7.6E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	4.1E-10	8.9E-07	mg/kg-day	7.0E-02	mg/kg-day	1.3E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.32.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	2.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-08	2.4E-08	mg/kg-day	5.0E-05	mg/kg-day	4.9E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	1.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03
				Aluminum	2E+04	ug/L	2.5E-05	mg/kg-day	N/A	N/A	N/A	2.9E-04	mg/kg-day	1.0E-02	mg/kg-day	2.9E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+02	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.5E-05	mg/kg-day	9.7E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-08					1E-01
		Exposure Point Total									5E-08					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.9E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	7.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-08	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04
				Carbazole	2E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	8.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.9E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	9.9E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Aroclor-1254	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Aroclor-1260	1E-01	mg/kg	4.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.4E-09	4.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	2E+00	mg/kg	6.5E-08	mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.9E-03
				Arsenic	4E+01	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.3E-02

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CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03
				Chromium	1E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	5E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Copper	2E+02	mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	8.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	9.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-05	mg/kg-day	3.6E-03
				Vanadium	2E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03
			Exp. Route Total								4E-06					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.5E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-08	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.7E-10	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1242	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03
				Aroclor-1254	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Dieldrin	2E-02	mg/kg	7.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.6E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Cadmium (other media)	1E+01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					5E-02
		Exposure Point Total									7E-06					2E-01

TABLE 7.32.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.32.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.3E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.5E-10	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	2E-01	mg/kg	3.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.6E-11	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1248	6E+00	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-07	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.3E-02
				Aroclor-1254	5E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	2E-01	mg/kg	3.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-09	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	2E-02	mg/kg	3.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.6E-09	4.1E-09	mg/kg-day	5.0E-05	mg/kg-day	8.1E-05
				Dioxin TEQ	3E-05	mg/kg	5.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	7.2E-08	6.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-07	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	1E+02	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.4E-03
				Cobalt	4E+00	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Copper	2E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	3E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.9E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	2.0E-03
				Mercury (other media)	5E-01	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	1E+00	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	8.0E-05	mg/kg-day	2.8E-03
				Vanadium	3E+01	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.0E-03	mg/kg-day	8.5E-04
				Zinc	9E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.2E-04
			Exp. Route Total								2E-06					1E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.9E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.8E-10	8.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.1E-05
				Carbazole	2E-01	mg/kg	8.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-08	4.7E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.32.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	6E+00	mg/kg	2.7E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-07	3.1E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Aroclor-1254	5E-01	mg/kg	2.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	2E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.8E-09	9.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.6E-03
				Dieldrin	2E-02	mg/kg	6.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.8E-09	7.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Dioxin TEQ	3E-05	mg/kg	2.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.8E-08	3.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	1E+01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					2E-01
		Exposure Point Total									6E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)													
				Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	2.0E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.1E-10	2.3E-07	mg/kg-day	7.0E-02	mg/kg-day	3.3E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.32.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	6.2E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.6E-09	7.2E-09	mg/kg-day	1.3E-05	mg/kg-day	5.6E-04
				Aluminum	2E+04	ug/L	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	1.0E-02	mg/kg-day	1.4E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+02	ug/L	3.1E-07	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	7.5E-05	mg/kg-day	4.9E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-08					6E-02
		Exposure Point Total									2E-08					6E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-09	7.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-09	2.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Carbazole	2E-01	mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-11	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.3E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06
				Aroclor-1242	2E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1254	3E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	3.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.1E-04
				Dieldrin	2E-02	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.3E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.4E-05
				Aluminum	9E+03	mg/kg	7.6E-05	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Antimony	2E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-04	mg/kg-day	4.7E-04
				Arsenic	4E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.1E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02

TABLE 7.32.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-03	mg/kg-day	4.8E-03
				Cobalt	5E+00	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	4.0E-02	mg/kg-day	5.2E-04
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	3.9E-04
				Mercury (other media)	3E-01	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	7E-01	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.7E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	4.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.8E-09	5.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.8E-04
				Carbazole	2E-01	mg/kg	6.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.4E-10	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1242	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-09	8.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Aroclor-1254	3E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	1E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.7E-09	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.8E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.8E-07	3.0E-06	mg/kg-day	3.0E-04	mg/kg-day	9.9E-03
				Cadmium (other media)	1E+01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					5E-02

TABLE 7.32.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	7.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	7.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	8.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.2E-07	1.7E-04	mg/kg-day	2.0E-02	mg/kg-day	8.6E-03
				Carbazole	5E-01	mg/kg	6.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	4.5E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03
				Aroclor-1254	2E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.8E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1260	2E-01	mg/kg	3.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	2E-01	mg/kg	2.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.9E-07	7.0E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	5E-05	mg/kg	6.3E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	8.2E-07	1.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	3E+02	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.9E-02
				Cobalt	8E+00	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	3E+02	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-02	mg/kg-day	2.6E-03
				Iron	3E+04	mg/kg	4.0E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.7E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				Mercury (other media)	7E-01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03
				Zinc	5E+02	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.3E-04
			Exp. Route Total								1E-05					1E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.3E-07	6.8E-05	mg/kg-day	2.0E-02	mg/kg-day	3.4E-03
				Carbazole	5E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.8E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.3E-09	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.6E-08	8.2E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.7E-08	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.9E-08	5.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Dieldrin	2E-01	mg/kg	9.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-07	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04
				Dioxin TEQ	5E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	9.8E-08	2.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-06					2E-02
		Exposure Point Total									2E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	4.3E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.1E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.0E-08	9.2E-09	mg/kg-day	5.0E-05	mg/kg-day	1.8E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.3E-06	mg/kg-day	1.0E-02	mg/kg-day	6.3E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	3E+00	ug/L	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	7.5E-05	mg/kg-day	2.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.0E-02	mg/kg-day	1.0E-04
				Mercury (water)	2E-02	ug/L	1.2E-10	mg/kg-day	N/A	N/A	N/A	3.6E-10	mg/kg-day	2.1E-05	mg/kg-day	1.7E-05
				Vanadium	2E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.8E-04	mg/kg-day	2.3E-04
			Exp. Route Total								7E-08					4E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-09	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	3.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	2.3E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.7E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.0E-02	mg/kg-day	4.4E-07
				Phenanthrene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.1E-09	mg/kg-day	3.0E-02	mg/kg-day	2.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	5.2E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	2.8E-09	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.8E-05
				Aroclor-1260	1E-01	ug/L	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.2E-09	7.5E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				4,4'-DDD	5E-03	ug/L	1.1E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	2.7E-11	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	3.0E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.0E-11	8.8E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	3.6E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	1.2E-11	1.1E-10	mg/kg-day	5.0E-04	mg/kg-day	2.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	8.5E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-09	2.5E-10	mg/kg-day	5.0E-05	mg/kg-day	5.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	6.0E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	3E+00	ug/L	6.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.6E-08	1.9E-07	mg/kg-day	3.0E-04	mg/kg-day	6.2E-04
				Cadmium (other media)	6E-01	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.4E-03
				Chromium	3E+00	ug/L	7.1E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	9E+00	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	4.0E-02	mg/kg-day	1.5E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	7.0E-01	mg/kg-day	6.7E-04
				Lead	7E+00	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	7.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
				Mercury (water)	2E-02	ug/L	3.4E-10	mg/kg-day	N/A	N/A	N/A	1.0E-09	mg/kg-day	2.1E-05	mg/kg-day	4.8E-05
				Vanadium	2E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								1E-07					9E-03
		Exposure Point Total									2E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.9E-09	4.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.9E-09	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-10	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Dieldrin	7E-03	mg/kg	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.7E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.8E-05
				Aluminum	8E+03	mg/kg	5.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	2E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	8.0E-04
				Arsenic	9E+00	mg/kg	6.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.9E-07	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03
				Cadmium (other media)	2E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.5E-03
				Cobalt	6E+00	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				Copper	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	4.0E-02	mg/kg-day	8.2E-04
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.9E-04
				Mercury (other media)	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	4E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	8.0E-05	mg/kg-day	1.1E-03
				Vanadium	2E+01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.0E-03	mg/kg-day	5.4E-04
			Exp. Route Total								3E-06					5E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
				Carbazole	3E-01	mg/kg	6.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	2.4E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.9E-07	7.1E-07	mg/kg-day	2.0E-05	mg/kg-day	3.6E-02
				Aroclor-1260	4E-01	mg/kg	8.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	7E-03	mg/kg	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	3.1E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.5E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	2E+01	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-06					6E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A

TABLE 7.33.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.3E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.2E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-07	4.3E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.7E-10	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.3E-10	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.2E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	4E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1254	2E-01	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.0E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	8.8E-04
				Aroclor-1260	2E-01	mg/kg	7.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Dieldrin	2E-01	mg/kg	5.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.0E-08	1.8E-08	mg/kg-day	5.0E-05	mg/kg-day	3.5E-04
				Dioxin TEQ	4E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.4E-07	3.8E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Arsenic	1E+01	mg/kg	3.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03
				Cadmium (other media)	9E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-03	mg/kg-day	9.1E-04
				Chromium	3E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.7E-03
				Cobalt	8E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Copper	3E+02	mg/kg	7.5E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04
				Iron	3E+04	mg/kg	8.3E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.4E-05	mg/kg-day	N/A	N/A	N/A	8.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03
				Mercury (other media)	7E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	1.0E-04	mg/kg-day	6.9E-04
				Thallium	2E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	2.9E-03
				Vanadium	3E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04
				Zinc	5E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	3.0E-01	mg/kg-day	1.8E-04
			Exp. Route Total								3E-06					4E-02
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-07	3.4E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.8E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.7E-10	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	4.0E-03	mg/kg-day	4.9E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1254	2E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Aroclor-1260	2E-01	mg/kg	8.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.0E-09	2.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.4E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.8E-04
				Dioxin TEQ	4E-05	mg/kg	2.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.3E-08	9.0E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	9E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.9E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					8E-03
		Exposure Point Total									5E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.4E-08	mg/kg-day	2.0E-02	mg/kg-day	2.7E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	1.8E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	9.8E-09	6.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.6E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.1E-08	4.6E-09	mg/kg-day	5.0E-05	mg/kg-day	9.2E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	8.9E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-02	mg/kg-day	3.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	7.5E-05	mg/kg-day	1.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	7.0E-02	mg/kg-day	5.2E-05
				Mercury (water)	2E-02	ug/L	5.2E-11	mg/kg-day	N/A	N/A	N/A	1.8E-10	mg/kg-day	2.1E-05	mg/kg-day	8.6E-06
				Vanadium	2E+00	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								3E-08					2E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.8E-10	3.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.5E-10	4.6E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	4.5E-10	mg/kg-day	N/A	N/A	N/A	1.6E-09	mg/kg-day	3.0E-02	mg/kg-day	5.2E-08
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	9.5E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.9E-12	3.3E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	4.5E-10	mg/kg-day	N/A	N/A	N/A	1.6E-09	mg/kg-day	2.0E-02	mg/kg-day	7.9E-08
				Phenanthrene	1E-01	ug/L	8.7E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	3.0E-02	mg/kg-day	1.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	2.1E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	1.2E-09	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Aroclor-1260	1E-01	ug/L	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04
				4,4'-DDD	5E-03	ug/L	4.7E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.1E-11	1.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	1.3E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	4.3E-12	4.4E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	1.5E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	5.2E-12	5.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.6E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.7E-10	1.2E-10	mg/kg-day	5.0E-05	mg/kg-day	2.5E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	1.0E-02	mg/kg-day	8.7E-04
				Arsenic	3E+00	ug/L	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-08	9.3E-08	mg/kg-day	3.0E-04	mg/kg-day	3.1E-04
				Cadmium (other media)	6E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	8E-01	ug/L	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	3.0E-04	mg/kg-day	8.5E-05
				Copper	9E+00	ug/L	8.3E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	4.0E-02	mg/kg-day	7.3E-06
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04
				Lead	7E+00	ug/L	6.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	2E-02	ug/L	1.4E-10	mg/kg-day	N/A	N/A	N/A	5.0E-10	mg/kg-day	2.1E-05	mg/kg-day	2.4E-05
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	1.8E-04	mg/kg-day	3.2E-04
			Exp. Route Total								4E-08					4E-03
		Exposure Point Total									8E-08					6E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.1E-09	9.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.9E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Carbazole	3E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.8E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.4E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-02	mg/kg-day	4.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Aroclor-1260	4E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Dieldrin	7E-03	mg/kg	1.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.6E-09	3.5E-10	mg/kg-day	5.0E-05	mg/kg-day	7.0E-06
				Aluminum	8E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	1.0E+00	mg/kg-day	4.1E-04
				Antimony	2E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04
				Arsenic	9E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.1E-07	4.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.6E-03
				Cadmium (other media)	2E+01	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	1.0E-03	mg/kg-day	9.0E-04

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-03	mg/kg-day	2.1E-03
				Cobalt	6E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Copper	2E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.1E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	9.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	2.0E-04
				Mercury (other media)	5E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	1.0E-04	mg/kg-day	2.5E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	2E+01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								7E-07					1E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.6E-09	6.5E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.0E-10	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1260	4E-01	mg/kg	3.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	7E-03	mg/kg	4.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.0E-09	1.5E-09	mg/kg-day	5.0E-05	mg/kg-day	3.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A

TABLE 7.33.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.34.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	7.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	7.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.3E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	8.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.2E-07	1.7E-04	mg/kg-day	2.0E-02	mg/kg-day	8.6E-03
				Carbazole	5E-01	mg/kg	6.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	4.5E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03
				Aroclor-1254	2E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.8E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1260	2E-01	mg/kg	3.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	2E-01	mg/kg	2.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.9E-07	7.0E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	5E-05	mg/kg	6.3E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	8.2E-07	1.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	3E+02	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.9E-02
				Cobalt	8E+00	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	3E+02	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-02	mg/kg-day	2.6E-03
				Iron	3E+04	mg/kg	4.0E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.7E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				Mercury (other media)	7E-01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03
				Zinc	5E+02	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.3E-04
			Exp. Route Total								1E-05					1E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.3E-07	6.8E-05	mg/kg-day	2.0E-02	mg/kg-day	3.4E-03
				Carbazole	5E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.8E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.34.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.3E-09	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.6E-08	8.2E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.7E-08	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.9E-08	5.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Dieldrin	2E-01	mg/kg	9.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-07	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04
				Dioxin TEQ	5E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	9.8E-08	2.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-06					2E-02
		Exposure Point Total									2E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	6.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.9E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.34.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	2.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.3E-08	6.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	1.0E-02	mg/kg-day	4.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	8.3E-09	mg/kg-day	2.5E-05	mg/kg-day	3.3E-04
				Chromium	3E+00	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	9.5E-09	mg/kg-day	N/A	N/A	N/A	2.8E-08	mg/kg-day	1.8E-04	mg/kg-day	1.5E-04
			Exp. Route Total								3E-08					2E-03
		Exposure Point Total									3E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.9E-09	4.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.9E-09	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-10	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Dieldrin	7E-03	mg/kg	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.7E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.8E-05

TABLE 7.34.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	5.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	2E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	8.0E-04
				Arsenic	9E+00	mg/kg	6.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.9E-07	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03
				Cadmium (other media)	2E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.5E-03
				Cobalt	6E+00	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				Copper	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	4.0E-02	mg/kg-day	8.2E-04
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.9E-04
				Mercury (other media)	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	4E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	8.0E-05	mg/kg-day	1.1E-03
				Vanadium	2E+01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.0E-03	mg/kg-day	5.4E-04
			Exp. Route Total								3E-06					5E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.8E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
				Carbazole	3E-01	mg/kg	6.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	2.4E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.9E-07	7.1E-07	mg/kg-day	2.0E-05	mg/kg-day	3.6E-02
				Aroclor-1260	4E-01	mg/kg	8.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	7E-03	mg/kg	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-08	3.1E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.5E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	2E+01	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.34.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								7E-06					6E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.34.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.3E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.2E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-07	4.3E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.7E-10	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.3E-10	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.2E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	4E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1254	2E-01	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.0E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	8.8E-04
				Aroclor-1260	2E-01	mg/kg	7.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Dieldrin	2E-01	mg/kg	5.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.0E-08	1.8E-08	mg/kg-day	5.0E-05	mg/kg-day	3.5E-04
				Dioxin TEQ	4E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.4E-07	3.8E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Arsenic	1E+01	mg/kg	3.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03
				Cadmium (other media)	9E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-03	mg/kg-day	9.1E-04
				Chromium	3E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.7E-03
				Cobalt	8E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Copper	3E+02	mg/kg	7.5E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04
				Iron	3E+04	mg/kg	8.3E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.4E-05	mg/kg-day	N/A	N/A	N/A	8.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03
				Mercury (other media)	7E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	1.0E-04	mg/kg-day	6.9E-04
				Thallium	2E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	2.9E-03
				Vanadium	3E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04
				Zinc	5E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	3.0E-01	mg/kg-day	1.8E-04
			Exp. Route Total								3E-06					4E-02
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-07	3.4E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.8E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.34.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.7E-10	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	4.0E-03	mg/kg-day	4.9E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1254	2E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Aroclor-1260	2E-01	mg/kg	8.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.0E-09	2.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.4E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.8E-04
				Dioxin TEQ	4E-05	mg/kg	2.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.3E-08	9.0E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-07	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	9E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.9E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					8E-03
		Exposure Point Total									5E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	2.0E-02	mg/kg-day	1.8E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.34.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	8.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	5.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	1.0E-02	mg/kg-day	2.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	2.5E-05	mg/kg-day	1.7E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.6E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.6E-05
			Exp. Route Total								1E-08					1E-03
		Exposure Point Total									1E-08					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.1E-09	9.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.9E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Carbazole	3E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.8E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.4E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-02	mg/kg-day	4.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Aroclor-1260	4E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Dieldrin	7E-03	mg/kg	1.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.6E-09	3.5E-10	mg/kg-day	5.0E-05	mg/kg-day	7.0E-06

TABLE 7.34.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	1.0E+00	mg/kg-day	4.1E-04
				Antimony	2E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04
				Arsenic	9E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.1E-07	4.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.6E-03
				Cadmium (other media)	2E+01	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	1.0E-03	mg/kg-day	9.0E-04
				Chromium	1E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-03	mg/kg-day	2.1E-03
				Cobalt	6E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Copper	2E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.1E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	9.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	2.0E-04
				Mercury (other media)	5E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	1.0E-04	mg/kg-day	2.5E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	2E+01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								7E-07					1E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.6E-09	6.5E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.0E-10	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1260	4E-01	mg/kg	3.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	7E-03	mg/kg	4.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.0E-09	1.5E-09	mg/kg-day	5.0E-05	mg/kg-day	3.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.34.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.6E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-02	mg/kg-day	8.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-08	9.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-07	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.6E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.7E-09	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-03	mg/kg-day	4.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	6.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.3E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.0E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.0E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-07	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.1E-07	3.7E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	7.1E-03	mg/kg-day	1.0E+00	mg/kg-day	7.1E-03
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-03	mg/kg-day	7.3E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	7.8E-02
				Cobalt	8E+00	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.2E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.9E-05	mg/kg-day	N/A	N/A	N/A	6.8E-04	mg/kg-day	7.0E-02	mg/kg-day	9.8E-03
				Mercury (other media)	7E-01	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.4E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
			Exp. Route Total								1E-05					3E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-07	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.1E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.6E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-07	3.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				Carbazole	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.5E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	7.7E-09	4.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.7E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.6E-04
				Aroclor-1248	4E-01	mg/kg	3.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.2E-08	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.3E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.5E-03
				Dioxin TEQ	5E-05	mg/kg	8.3E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.1E-07	9.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					7E-02
		Exposure Point Total									3E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	1.3E-07	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	7.2E-09	1.5E-06	mg/kg-day	4.0E-03	mg/kg-day	3.8E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	9.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	1.0E-02	mg/kg-day	7.6E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.2E-04
				Chromium	3E+00	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	7.5E-05	mg/kg-day	2.4E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.8E-04	mg/kg-day	2.8E-04
			Exp. Route Total								2E-08					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-09	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.5E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.0E-02	mg/kg-day	8.8E-07
				Phenanthrene	1E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	3.0E-02	mg/kg-day	4.1E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	2.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	1.4E-09	3.0E-07	mg/kg-day	4.0E-03	mg/kg-day	7.5E-05
				Aroclor-1260	1E-01	ug/L	1.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.6E-09	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	7.5E-04
				4,4'-DDD	5E-03	ug/L	5.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.3E-11	6.5E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	1.5E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	5.1E-12	1.8E-10	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	1.8E-11	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	6.2E-12	2.1E-10	mg/kg-day	5.0E-04	mg/kg-day	4.3E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	4.3E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.8E-10	5.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.0E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03
				Arsenic	3E+00	ug/L	3.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.8E-08	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	6E-01	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	3E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	7.5E-05	mg/kg-day	5.5E-03
				Cobalt	8E-01	ug/L	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04
				Copper	9E+00	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.9E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	8.0E-05	mg/kg-day	N/A	N/A	N/A	9.3E-04	mg/kg-day	7.0E-01	mg/kg-day	1.3E-03
				Lead	7E+00	ug/L	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	7.0E-02	mg/kg-day	5.8E-04
				Mercury (water)	2E-02	ug/L	1.7E-10	mg/kg-day	N/A	N/A	N/A	2.0E-09	mg/kg-day	2.1E-05	mg/kg-day	9.5E-05
				Vanadium	2E+00	ug/L	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	1.8E-04	mg/kg-day	1.3E-03
			Exp. Route Total								6E-08					2E-02
		Exposure Point Total									8E-08					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.0E-08	4.6E-07	mg/kg-day	2.0E-05	mg/kg-day	2.3E-02
				Aroclor-1260	4E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.7E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-03	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.8E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.6E-05
				Aluminum	8E+03	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	1.0E+00	mg/kg-day	3.2E-03
				Antimony	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	9E+00	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.0E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	2E+01	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	6E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.7E-03
				Copper	2E+02	mg/kg	5.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.6E-03
				Iron	2E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	4E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.1E-03
			Exp. Route Total								4E-06					1E-01
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.4E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.3E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.6E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	7.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-07	8.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.1E-02
				Aroclor-1260	4E-01	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.7E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	7E-03	mg/kg	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	7.0E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.9E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03
				Cadmium (other media)	2E+01	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-06					6E-02
		Exposure Point Total									9E-06					2E-01
	Exposure Medium Total										N/A					N/A

TABLE 7.35.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.2E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.0E-07	8.6E-05	mg/kg-day	2.0E-02	mg/kg-day	4.3E-03
				Carbazole	5E-01	mg/kg	8.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	9.6E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.7E-09	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.7E-05
				Aroclor-1248	4E-01	mg/kg	6.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.3E-09	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1254	2E-01	mg/kg	3.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.3E-09	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-01	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-08	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.0E-04
				Dioxin TEQ	4E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	8.4E-08	7.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Arsenic	1E+01	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.4E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.8E-03
				Cadmium (other media)	9E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	3E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	8E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Copper	3E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	5.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03
				Iron	3E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	5.8E-03	mg/kg-day	7.0E-01	mg/kg-day	8.3E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	7E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	2E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	8.0E-05	mg/kg-day	5.9E-03
				Vanadium	3E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	7.0E-03	mg/kg-day	8.0E-04
				Zinc	5E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								3E-06					7E-02
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.5E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.7E-09	5.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-07	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.5E-03
				Carbazole	5E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.8E-09	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.4E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.7E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1248	4E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03
				Aroclor-1254	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-09	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03
				Dieldrin	2E-01	mg/kg	5.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.5E-08	6.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03
				Dioxin TEQ	4E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.4E-08	4.0E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03
				Cadmium (other media)	9E+00	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					3E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.0E-02	mg/kg-day	3.3E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	6.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	3.6E-09	7.7E-07	mg/kg-day	4.0E-03	mg/kg-day	1.9E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	7.7E-09	5.6E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	3.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-02	mg/kg-day	3.8E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	6.6E-10	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	2.5E-05	mg/kg-day	3.1E-04
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04
			Exp. Route Total								1E-08					2E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	6.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-09	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	7.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	2.7E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	3.0E-02	mg/kg-day	1.0E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	5.7E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.2E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	2.7E-10	mg/kg-day	N/A	N/A	N/A	3.2E-09	mg/kg-day	2.0E-02	mg/kg-day	1.6E-07
				Phenanthrene	1E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	6.1E-09	mg/kg-day	3.0E-02	mg/kg-day	2.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	1.3E-08	mg/kg-day	5.5E-02	(mg/kg-day) $^{-1}$	7.1E-10	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.8E-05
				Aroclor-1260	1E-01	ug/L	6.4E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.4E-10	7.5E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				4,4'-DDD	5E-03	ug/L	2.8E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	6.7E-12	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	7.5E-12	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	2.6E-12	8.8E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	9.1E-12	mg/kg-day	3.4E-01	(mg/kg-day) $^{-1}$	3.1E-12	1.1E-10	mg/kg-day	5.0E-04	mg/kg-day	2.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	2.1E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.4E-10	2.5E-10	mg/kg-day	5.0E-05	mg/kg-day	5.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	3E+00	ug/L	1.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.9E-07	mg/kg-day	3.0E-04	mg/kg-day	6.2E-04
				Cadmium (other media)	6E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.4E-03
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	9E+00	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	4.0E-02	mg/kg-day	1.5E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	7.0E-01	mg/kg-day	6.7E-04
				Lead	7E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
				Mercury (water)	2E-02	ug/L	8.6E-11	mg/kg-day	N/A	N/A	N/A	1.0E-09	mg/kg-day	2.1E-05	mg/kg-day	4.8E-05
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								3E-08					9E-03
		Exposure Point Total									4E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.3E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.0E-10	mg/kg-day	N/A	N/A	N/A	9.4E-09	mg/kg-day	4.0E-03	mg/kg-day	2.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.6E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Aroclor-1260	4E-01	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Dieldrin	7E-03	mg/kg	6.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.6E-10	7.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	8E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	1.0E+00	mg/kg-day	8.1E-04
				Antimony	2E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	9.6E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	6E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Copper	2E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	4.1E-04
				Iron	2E+04	mg/kg	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.8E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	5E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	1.0E-04	mg/kg-day	5.0E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.3E-04
				Vanadium	2E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-03	mg/kg-day	2.7E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	8.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.9E-10	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				Carbazole	3E-01	mg/kg	8.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	3.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Aroclor-1260	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Dieldrin	7E-03	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.3E-08	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	2E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					6E-02
	Exposure Medium Total										N/A					N/A

TABLE 7.35.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.36.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.6E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-02	mg/kg-day	8.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-08	9.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-07	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.6E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.7E-09	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-03	mg/kg-day	4.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	6.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.3E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.0E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.0E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-07	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.1E-07	3.7E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	7.1E-03	mg/kg-day	1.0E+00	mg/kg-day	7.1E-03
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-03	mg/kg-day	7.3E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	7.8E-02
				Cobalt	8E+00	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.2E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.9E-05	mg/kg-day	N/A	N/A	N/A	6.8E-04	mg/kg-day	7.0E-02	mg/kg-day	9.8E-03
				Mercury (other media)	7E-01	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.4E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
			Exp. Route Total								1E-05					3E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-07	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.1E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.6E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-07	3.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				Carbazole	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.5E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.36.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	7.7E-09	4.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.7E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.6E-04
				Aroclor-1248	4E-01	mg/kg	3.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.2E-08	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.3E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.5E-03
				Dioxin TEQ	5E-05	mg/kg	8.3E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.1E-07	9.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					7E-02
		Exposure Point Total									3E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.36.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	5.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.5E-09	6.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	4.0E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	1.0E-02	mg/kg-day	4.7E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-09					2E-03
		Exposure Point Total									9E-09					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.0E-08	4.6E-07	mg/kg-day	2.0E-05	mg/kg-day	2.3E-02
				Aroclor-1260	4E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.7E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-03	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.8E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.6E-05

TABLE 7.36.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	1.0E+00	mg/kg-day	3.2E-03
				Antimony	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	9E+00	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.0E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	2E+01	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	1E+02	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	6E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.7E-03
				Copper	2E+02	mg/kg	5.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.6E-03
				Iron	2E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	4E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.1E-03
			Exp. Route Total								4E-06					1E-01
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.4E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.3E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.6E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	7.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.4E-07	8.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.1E-02
				Aroclor-1260	4E-01	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.7E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	7E-03	mg/kg	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	7.0E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.9E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03
				Cadmium (other media)	2E+01	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.36.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								5E-06					6E-02
		Exposure Point Total									9E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.36.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.2E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.0E-07	8.6E-05	mg/kg-day	2.0E-02	mg/kg-day	4.3E-03
				Carbazole	5E-01	mg/kg	8.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	9.6E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.7E-09	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.7E-05
				Aroclor-1248	4E-01	mg/kg	6.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.3E-09	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1254	2E-01	mg/kg	3.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.3E-09	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-01	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.8E-08	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.0E-04
				Dioxin TEQ	4E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	8.4E-08	7.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Arsenic	1E+01	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.4E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.8E-03
				Cadmium (other media)	9E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	3E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	8E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Copper	3E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	5.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03
				Iron	3E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	5.8E-03	mg/kg-day	7.0E-01	mg/kg-day	8.3E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	7E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	2E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	8.0E-05	mg/kg-day	5.9E-03
				Vanadium	3E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	7.0E-03	mg/kg-day	8.0E-04
				Zinc	5E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								3E-06					7E-02
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.5E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.7E-09	5.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-07	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.5E-03
				Carbazole	5E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.36.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.8E-09	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.4E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.7E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1248	4E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03
				Aroclor-1254	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-09	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03
				Dieldrin	2E-01	mg/kg	5.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.5E-08	6.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03
				Dioxin TEQ	4E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.4E-08	4.0E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03
				Cadmium (other media)	9E+00	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					3E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	2.0E-02	mg/kg-day	2.0E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.36.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.7E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	6.9E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	1.0E-02	mg/kg-day	2.4E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-09					1E-03
		Exposure Point Total									5E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion													
				Benzo(a)anthracene	3E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.6E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.3E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.0E-10	mg/kg-day	N/A	N/A	N/A	9.4E-09	mg/kg-day	4.0E-03	mg/kg-day	2.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.6E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Aroclor-1260	4E-01	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Dieldrin	7E-03	mg/kg	6.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.6E-10	7.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05

TABLE 7.36.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	1.0E+00	mg/kg-day	8.1E-04
				Antimony	2E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	9.6E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	6E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Copper	2E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	4.1E-04
				Iron	2E+04	mg/kg	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.8E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	5E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	1.0E-04	mg/kg-day	5.0E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.3E-04
				Vanadium	2E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-03	mg/kg-day	2.7E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	8.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-06	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.9E-10	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				Carbazole	3E-01	mg/kg	8.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	3.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Aroclor-1260	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Dieldrin	7E-03	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.3E-08	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	2E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.36.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					6E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	5.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	6.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.4E-09	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.8E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.9E-10	8.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	3.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	9.8E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	4E-01	mg/kg	4.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				Dieldrin	1E-01	mg/kg	1.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-07	4.9E-08	mg/kg-day	5.0E-05	mg/kg-day	9.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.3E-03	mg/kg-day	1.0E+00	mg/kg-day	4.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.2E-06	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	3.2E-05	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.4E-03
				Iron	3E+04	mg/kg	3.6E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03
				Mercury (other media)	6E-01	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-04	mg/kg-day	2.4E-03
				Thallium	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	8.0E-05	mg/kg-day	9.2E-03
				Vanadium	3E+01	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-03	mg/kg-day	1.8E-03
				Zinc	3E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								7E-06					1E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	7.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.4E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-09	7.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.1E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.8E-06

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.7E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.5E-08	8.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Dieldrin	1E-01	mg/kg	6.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-07	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									9E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-07	5.0E-05	mg/kg-day	2.0E-02	mg/kg-day	2.5E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.0E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.6E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	5.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	5.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.7E-08	1.5E-08	mg/kg-day	1.3E-05	mg/kg-day	1.2E-03
				Aluminum	2E+03	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	1.0E-02	mg/kg-day	4.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.2E-04
				Chromium	9E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	7.5E-05	mg/kg-day	5.1E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.0E-02	mg/kg-day	9.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	9.5E-08	mg/kg-day	1.8E-04	mg/kg-day	5.2E-04
			Exp. Route Total								3E-07					1E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-08	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.0E-09	6.3E-07	mg/kg-day	2.0E-02	mg/kg-day	3.1E-05
				Chrysene	2E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.4E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	3.0E-02	mg/kg-day	3.5E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	1.2E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	3.0E-11	3.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	9.4E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.3E-11	2.8E-10	mg/kg-day	5.0E-04	mg/kg-day	5.5E-07

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	6.2E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.7E-10	1.8E-10	mg/kg-day	1.3E-05	mg/kg-day	1.4E-05
				Aluminum	2E+03	ug/L	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02
				Arsenic	5E+00	ug/L	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	5E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.2E-03
				Chromium	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	7.5E-05	mg/kg-day	7.1E-03
				Cobalt	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	7.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04
				Lead	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	6.3E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.0E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	1.8E-04	mg/kg-day	1.4E-03
			Exp. Route Total								2E-07					2E-02
		Exposure Point Total									5E-07					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									5E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A

TABLE 7.37.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.6E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.1E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.7E-06
				Carbazole	2E-01	mg/kg	6.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	9.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.4E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	3.0E-02	mg/kg-day	4.7E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.0E-09	mg/kg-day	2.0E-05	mg/kg-day	4.0E-04
				Aroclor-1260	1E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04
				Dieldrin	5E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-08	5.3E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	7.2E-04	mg/kg-day	1.0E+00	mg/kg-day	7.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	1.0E-03	mg/kg-day	3.6E-04
				Chromium	9E+01	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	9.5E-06	mg/kg-day	3.0E-03	mg/kg-day	3.2E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	3.0E-04
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	3E-01	mg/kg	9.6E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	1.0E-04	mg/kg-day	3.4E-04
				Thallium	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03
				Vanadium	2E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
				Zinc	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-01	mg/kg-day	5.0E-05
			Exp. Route Total								8E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.7E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.9E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06
				Carbazole	2E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.7E-08	2.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.9E-06

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	4.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-09	8.9E-09	mg/kg-day	2.0E-05	mg/kg-day	4.5E-04
				Aroclor-1260	1E-01	mg/kg	4.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.0E-09	1.4E-08	mg/kg-day	2.0E-05	mg/kg-day	6.9E-04
				Dieldrin	5E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-08	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-08	2.2E-07	mg/kg-day	3.0E-04	mg/kg-day	7.3E-04
				Cadmium (other media)	4E+00	mg/kg	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-07					2E-03
		Exposure Point Total									1E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	3.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.0E-08	1.3E-05	mg/kg-day	2.0E-02	mg/kg-day	6.3E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.7E-10	6.7E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.2E-08	4.7E-09	mg/kg-day	1.3E-05	mg/kg-day	3.6E-04
				Aluminum	7E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	1.0E-02	mg/kg-day	8.3E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	7.5E-05	mg/kg-day	9.9E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	6.1E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.2E-04
			Exp. Route Total								6E-08					3E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-09	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Chrysene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	5.2E-12	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	3.0E-02	mg/kg-day	9.4E-08
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	3.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	8.6E-12	1.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.8E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.3E-12	6.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.3E-07

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.6E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.5E-10	5.6E-11	mg/kg-day	1.3E-05	mg/kg-day	4.3E-06
				Aluminum	7E+02	ug/L	6.6E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03
				Arsenic	3E+00	ug/L	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.6E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04
				Cadmium (other media)	4E-01	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.5E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	7E-01	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-04	mg/kg-day	6.9E-05
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	1.3E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-01	mg/kg-day	6.7E-05
				Lead	4E+00	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	1.8E-04	mg/kg-day	3.3E-04
			Exp. Route Total								5E-08					5E-03
		Exposure Point Total									1E-07					8E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									1E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A

TABLE 7.37.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.38.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	5.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	6.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.4E-09	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.8E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.9E-10	8.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	3.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	9.8E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	4E-01	mg/kg	4.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				Dieldrin	1E-01	mg/kg	1.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-07	4.9E-08	mg/kg-day	5.0E-05	mg/kg-day	9.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.3E-03	mg/kg-day	1.0E+00	mg/kg-day	4.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.2E-06	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	3.2E-05	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.4E-03
				Iron	3E+04	mg/kg	3.6E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03
				Mercury (other media)	6E-01	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-04	mg/kg-day	2.4E-03
				Thallium	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	8.0E-05	mg/kg-day	9.2E-03
				Vanadium	3E+01	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-03	mg/kg-day	1.8E-03
				Zinc	3E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								7E-06					1E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	7.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.4E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-09	7.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.1E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.8E-06

TABLE 7.38.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.7E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.5E-08	8.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Dieldrin	1E-01	mg/kg	6.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.1E-07	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									9E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.6E-07	3.3E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.38.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	6.7E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.3E-09	2.0E-08	mg/kg-day	5.0E-04	mg/kg-day	3.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	3.4E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	3.1E-08	9.9E-09	mg/kg-day	1.3E-05	mg/kg-day	7.6E-04
				Aluminum	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-02	mg/kg-day	3.1E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	7.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.8E-04
				Chromium	9E+00	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	7.5E-05	mg/kg-day	3.4E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	1.8E-04	mg/kg-day	3.4E-04
			Exp. Route Total								2E-07					1E-02
		Exposure Point Total									2E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.38.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02

TABLE 7.38.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									5E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.38.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.6E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.1E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.7E-06
				Carbazole	2E-01	mg/kg	6.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	9.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.4E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	3.0E-02	mg/kg-day	4.7E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	8.0E-09	mg/kg-day	2.0E-05	mg/kg-day	4.0E-04
				Aroclor-1260	1E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04
				Dieldrin	5E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.4E-08	5.3E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	7.2E-04	mg/kg-day	1.0E+00	mg/kg-day	7.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	1.0E-03	mg/kg-day	3.6E-04
				Chromium	9E+01	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	9.5E-06	mg/kg-day	3.0E-03	mg/kg-day	3.2E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	3.0E-04
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	3E-01	mg/kg	9.6E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	1.0E-04	mg/kg-day	3.4E-04
				Thallium	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03
				Vanadium	2E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
				Zinc	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-01	mg/kg-day	5.0E-05
			Exp. Route Total								8E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.7E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.9E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06
				Carbazole	2E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.7E-08	2.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.9E-06

TABLE 7.38.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	4.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-09	8.9E-09	mg/kg-day	2.0E-05	mg/kg-day	4.5E-04
				Aroclor-1260	1E-01	mg/kg	4.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.0E-09	1.4E-08	mg/kg-day	2.0E-05	mg/kg-day	6.9E-04
				Dieldrin	5E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-08	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-08	2.2E-07	mg/kg-day	3.0E-04	mg/kg-day	7.3E-04
				Cadmium (other media)	4E+00	mg/kg	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-07					2E-03
		Exposure Point Total									1E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.3E-08	8.3E-06	mg/kg-day	2.0E-02	mg/kg-day	4.1E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.38.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.3E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	4.4E-10	4.4E-09	mg/kg-day	5.0E-04	mg/kg-day	8.9E-06
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	8.8E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.0E-09	3.1E-09	mg/kg-day	1.3E-05	mg/kg-day	2.4E-04
				Aluminum	7E+02	ug/L	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	7.7E-10	mg/kg-day	N/A	N/A	N/A	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.8E-05
			Exp. Route Total								4E-08					2E-03
		Exposure Point Total									4E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.38.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03

TABLE 7.38.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									1E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-07	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.7E-09	3.9E-06	mg/kg-day	2.0E-02	mg/kg-day	2.0E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-10	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-02	mg/kg-day	6.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Aroclor-1260	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.9E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	8.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	7.3E-04	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	3.0E-03	mg/kg-day	4.5E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.7E-03
				Iron	3E+04	mg/kg	1.8E-03	mg/kg-day	N/A	N/A	N/A	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	3.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	7.8E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	1.0E-04	mg/kg-day	4.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	8.0E-05	mg/kg-day	1.8E-02
				Vanadium	3E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.6E-03
				Zinc	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.2E-04
			Exp. Route Total								7E-06					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-09	3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.9E-07	4.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-08	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.0E-08	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-07	8.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	5.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	3.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.1E-09	3.6E-08	mg/kg-day	5.0E-04	mg/kg-day	7.2E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	1.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03
				Aluminum	2E+03	ug/L	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-02	mg/kg-day	5.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.2E-04
				Chromium	9E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	7.5E-05	mg/kg-day	6.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								9E-08					2E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.3E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.5E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.3E-05
				Chrysene	2E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-02	mg/kg-day	7.1E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	6.2E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.5E-11	7.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	4.7E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-11	5.5E-10	mg/kg-day	5.0E-04	mg/kg-day	1.1E-06

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	3.1E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.8E-10	3.6E-10	mg/kg-day	1.3E-05	mg/kg-day	2.8E-05
				Aluminum	2E+03	ug/L	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	1.0E-02	mg/kg-day	2.6E-02
				Arsenic	5E+00	ug/L	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.4E-03
				Chromium	9E+00	ug/L	9.1E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.5E-05	mg/kg-day	1.4E-02
				Cobalt	7E-01	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	3.0E-04	mg/kg-day	2.8E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-01	mg/kg-day	6.6E-04
				Lead	9E+00	ug/L	9.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-02	mg/kg-day	5.3E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	4.5E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03
			Exp. Route Total								1E-07					5E-02
		Exposure Point Total									2E-07					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
			Exp. Route Total								2E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A

TABLE 7.39.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	2E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.4E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.9E-08	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	3.0E-02	mg/kg-day	9.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.0E-04
				Aroclor-1260	1E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	5E-02	mg/kg	9.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	1.0E+00	mg/kg-day	1.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	4E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	1.0E-03	mg/kg-day	7.1E-04
				Chromium	9E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.3E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	4.0E-02	mg/kg-day	6.0E-04
				Iron	1E+04	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	3.0E-03	mg/kg-day	7.0E-01	mg/kg-day	4.3E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	3E-01	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	1.0E-04	mg/kg-day	6.7E-04
				Thallium	1E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
				Zinc	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	5.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.5E-10	5.4E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.5E-06

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	1E-01	mg/kg	5.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.2E-09	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	5E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.6E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	9.7E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					9E-03
		Exposure Point Total									3E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	7.0E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.5E-10	8.2E-09	mg/kg-day	5.0E-04	mg/kg-day	1.6E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	4.9E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.5E-09	5.7E-09	mg/kg-day	1.3E-05	mg/kg-day	4.4E-04
				Aluminum	7E+02	ug/L	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	1.0E-02	mg/kg-day	1.0E-03
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	4.3E-10	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04
			Exp. Route Total								2E-08					4E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.4E-09	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.8E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05
				Chrysene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.4E-12	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	4.8E-10	mg/kg-day	N/A	N/A	N/A	5.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.9E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	2.1E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	5.2E-12	2.5E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.1E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.8E-12	1.3E-10	mg/kg-day	5.0E-04	mg/kg-day	2.5E-07

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	9.7E-12	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.8E-11	1.1E-10	mg/kg-day	1.3E-05	mg/kg-day	8.7E-06
				Aluminum	7E+02	ug/L	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	1.0E-02	mg/kg-day	4.6E-03
				Arsenic	3E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				Cadmium (other media)	4E-01	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	9.0E-04
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	7E-01	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04
				Lead	4E+00	ug/L	2.3E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	9.0E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.5E-04
			Exp. Route Total								4E-08					1E-02
		Exposure Point Total									6E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03
		Exposure Point Total									9E-07					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A

TABLE 7.39.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.40.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.3E-07	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.7E-09	3.9E-06	mg/kg-day	2.0E-02	mg/kg-day	2.0E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-10	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-02	mg/kg-day	6.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Aroclor-1260	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.9E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	8.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	7.3E-04	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	3.0E-03	mg/kg-day	4.5E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.7E-03
				Iron	3E+04	mg/kg	1.8E-03	mg/kg-day	N/A	N/A	N/A	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	3.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	7.8E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	1.0E-04	mg/kg-day	4.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	8.0E-05	mg/kg-day	1.8E-02
				Vanadium	3E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.6E-03
				Zinc	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.2E-04
			Exp. Route Total								7E-06					2E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-09	3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.9E-07	4.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05

TABLE 7.40.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-08	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.0E-08	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.2E-07	8.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.5E-08	3.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.40.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.7E-10	2.2E-08	mg/kg-day	5.0E-04	mg/kg-day	4.5E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	9.7E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.8E-09	1.1E-08	mg/kg-day	1.3E-05	mg/kg-day	8.7E-04
				Aluminum	2E+03	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	9E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	7.5E-05	mg/kg-day	3.8E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-08					1E-02
		Exposure Point Total									5E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.40.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
			Exp. Route Total								2E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02

TABLE 7.40.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.40.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.4E-08	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	2E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.4E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.9E-08	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	3.0E-02	mg/kg-day	9.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.0E-04
				Aroclor-1260	1E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	5E-02	mg/kg	9.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	1.0E+00	mg/kg-day	1.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	4E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	1.0E-03	mg/kg-day	7.1E-04
				Chromium	9E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.3E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	4.0E-02	mg/kg-day	6.0E-04
				Iron	1E+04	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	3.0E-03	mg/kg-day	7.0E-01	mg/kg-day	4.3E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	3E-01	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	1.0E-04	mg/kg-day	6.7E-04
				Thallium	1E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
				Zinc	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-08	5.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.5E-10	5.4E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.5E-06

TABLE 7.40.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	1E-01	mg/kg	5.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.2E-09	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	5E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.6E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	9.7E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					9E-03
		Exposure Point Total									3E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	8.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-08	9.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.40.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	4.3E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.5E-10	5.1E-09	mg/kg-day	5.0E-04	mg/kg-day	1.0E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	3.0E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.7E-09	3.5E-09	mg/kg-day	1.3E-05	mg/kg-day	2.7E-04
				Aluminum	7E+02	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-02	mg/kg-day	6.2E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-08					2E-03
		Exposure Point Total									1E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.40.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03

TABLE 7.40.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									9E-07					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.41.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	9.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.8E-09	2.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-09	3.5E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	1E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	7.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	6.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.0E-06	1.8E-07	mg/kg-day	5.0E-05	mg/kg-day	3.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.1E-03	mg/kg-day	1.0E+00	mg/kg-day	3.1E-03
				Antimony	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	1E+01	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.5E-06	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Cadmium (other media)	4E+00	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	3.1E-05	mg/kg-day	N/A	N/A	N/A	9.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.0E-02
				Cobalt	4E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Copper	1E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	6.5E-03	mg/kg-day	7.0E-01	mg/kg-day	9.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	6.5E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	2.7E-03
				Mercury (other media)	8E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	1.0E-04	mg/kg-day	3.2E-03
				Thallium	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.3E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	3E+01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-01	mg/kg-day	1.6E-04
			Exp. Route Total								5E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.5E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.4E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.6E-10	1.4E-07	mg/kg-day	2.0E-02	mg/kg-day	6.9E-06
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-08	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.41.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.0E-07	7.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.9E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	4E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.2E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									7E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-07	5.0E-05	mg/kg-day	2.0E-02	mg/kg-day	2.5E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.41.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.0E-08	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.6E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	5.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	5.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.7E-08	1.5E-08	mg/kg-day	1.3E-05	mg/kg-day	1.2E-03
				Aluminum	2E+03	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	1.0E-02	mg/kg-day	4.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.2E-04
				Chromium	9E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	7.5E-05	mg/kg-day	5.1E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.0E-02	mg/kg-day	9.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	9.5E-08	mg/kg-day	1.8E-04	mg/kg-day	5.2E-04
			Exp. Route Total								3E-07					1E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-08	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.0E-09	6.3E-07	mg/kg-day	2.0E-02	mg/kg-day	3.1E-05
				Chrysene	2E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.4E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	3.0E-02	mg/kg-day	3.5E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	1.2E-10	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	3.0E-11	3.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	9.4E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.3E-11	2.8E-10	mg/kg-day	5.0E-04	mg/kg-day	5.5E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.41.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	6.2E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	5.7E-10	1.8E-10	mg/kg-day	1.3E-05	mg/kg-day	1.4E-05
				Aluminum	2E+03	ug/L	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02
				Arsenic	5E+00	ug/L	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	5E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.2E-03
				Chromium	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	7.5E-05	mg/kg-day	7.1E-03
				Cobalt	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	7.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04
				Lead	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	6.3E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.0E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	1.8E-04	mg/kg-day	1.4E-03
			Exp. Route Total								2E-07					2E-02
		Exposure Point Total									5E-07					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03

TABLE 7.41.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									5E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.41.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.4E-09	6.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.5E-10	8.7E-08	mg/kg-day	2.0E-02	mg/kg-day	4.3E-06
				Carbazole	1E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.5E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.7E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	5E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.1E-07	4.6E-08	mg/kg-day	5.0E-05	mg/kg-day	9.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	7.9E-04
				Antimony	1E+00	mg/kg	3.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	1E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.1E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	2E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.6E-03
				Cobalt	4E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	1E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04
				Iron	2E+04	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (other media)	8E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	1.0E-04	mg/kg-day	8.0E-04
				Thallium	2E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	8.0E-05	mg/kg-day	2.3E-04
				Vanadium	3E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	7.0E-03	mg/kg-day	3.7E-04
				Zinc	1E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-01	mg/kg-day	4.0E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-09	7.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-10	6.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.5E-06
				Carbazole	1E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.9E-11	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.41.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-07	3.7E-08	mg/kg-day	5.0E-05	mg/kg-day	7.3E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	4E+00	mg/kg	8.9E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.2E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									2E-06					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	3.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.0E-08	1.3E-05	mg/kg-day	2.0E-02	mg/kg-day	6.3E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.41.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.7E-10	6.7E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.2E-08	4.7E-09	mg/kg-day	1.3E-05	mg/kg-day	3.6E-04
				Aluminum	7E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	1.0E-02	mg/kg-day	8.3E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	7.5E-05	mg/kg-day	9.9E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	6.1E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.2E-04
			Exp. Route Total								6E-08					3E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.2E-09	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Chrysene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	5.2E-12	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	3.0E-02	mg/kg-day	9.4E-08
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	3.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	8.6E-12	1.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.8E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.3E-12	6.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.3E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.41.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.6E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.5E-10	5.6E-11	mg/kg-day	1.3E-05	mg/kg-day	4.3E-06
				Aluminum	7E+02	ug/L	6.6E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03
				Arsenic	3E+00	ug/L	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.6E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04
				Cadmium (other media)	4E-01	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.5E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	7E-01	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-04	mg/kg-day	6.9E-05
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	1.3E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-01	mg/kg-day	6.7E-05
				Lead	4E+00	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	1.8E-04	mg/kg-day	3.3E-04
			Exp. Route Total								5E-08					5E-03
		Exposure Point Total									1E-07					8E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04

TABLE 7.41.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									1E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.42.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	9.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.8E-09	2.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.7E-09	3.5E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	1E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	7.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	6.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.0E-06	1.8E-07	mg/kg-day	5.0E-05	mg/kg-day	3.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.1E-03	mg/kg-day	1.0E+00	mg/kg-day	3.1E-03
				Antimony	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	1E+01	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.5E-06	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Cadmium (other media)	4E+00	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	3.1E-05	mg/kg-day	N/A	N/A	N/A	9.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.0E-02
				Cobalt	4E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Copper	1E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	6.5E-03	mg/kg-day	7.0E-01	mg/kg-day	9.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	6.5E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	2.7E-03
				Mercury (other media)	8E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	1.0E-04	mg/kg-day	3.2E-03
				Thallium	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.3E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	3E+01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-01	mg/kg-day	1.6E-04
			Exp. Route Total								5E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.5E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.4E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.6E-10	1.4E-07	mg/kg-day	2.0E-02	mg/kg-day	6.9E-06
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.7E-08	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.42.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.0E-07	7.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.9E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	4E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.2E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									7E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.6E-07	3.3E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.42.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	6.7E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.3E-09	2.0E-08	mg/kg-day	5.0E-04	mg/kg-day	3.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	3.4E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	3.1E-08	9.9E-09	mg/kg-day	1.3E-05	mg/kg-day	7.6E-04
				Aluminum	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-02	mg/kg-day	3.1E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	7.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.8E-04
				Chromium	9E+00	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	7.5E-05	mg/kg-day	3.4E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	1.8E-04	mg/kg-day	3.4E-04
			Exp. Route Total								2E-07					1E-02
		Exposure Point Total									2E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03

TABLE 7.42.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									5E-06					7E-02

TABLE 7.42.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.42.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.4E-09	6.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.5E-10	8.7E-08	mg/kg-day	2.0E-02	mg/kg-day	4.3E-06
				Carbazole	1E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.5E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.7E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-08	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	5E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.1E-07	4.6E-08	mg/kg-day	5.0E-05	mg/kg-day	9.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	7.9E-04
				Antimony	1E+00	mg/kg	3.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	1E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.1E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	2E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.6E-03
				Cobalt	4E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	1E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04
				Iron	2E+04	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (other media)	8E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	1.0E-04	mg/kg-day	8.0E-04
				Thallium	2E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	8.0E-05	mg/kg-day	2.3E-04
				Vanadium	3E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	7.0E-03	mg/kg-day	3.7E-04
				Zinc	1E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-01	mg/kg-day	4.0E-05
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-09	7.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-10	6.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.5E-06
				Carbazole	1E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.9E-11	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.42.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-07	3.7E-08	mg/kg-day	5.0E-05	mg/kg-day	7.3E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	4E+00	mg/kg	8.9E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.2E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									2E-06					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.3E-08	8.3E-06	mg/kg-day	2.0E-02	mg/kg-day	4.1E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.42.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.3E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	4.4E-10	4.4E-09	mg/kg-day	5.0E-04	mg/kg-day	8.9E-06
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	8.8E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.0E-09	3.1E-09	mg/kg-day	1.3E-05	mg/kg-day	2.4E-04
				Aluminum	7E+02	ug/L	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	7.7E-10	mg/kg-day	N/A	N/A	N/A	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.8E-05
			Exp. Route Total								4E-08					2E-03
		Exposure Point Total									4E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04

TABLE 7.42.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									1E-06					1E-02

TABLE 7.42.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.5E-05
				Carbazole	1E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	8.1E-08	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.3E-08	4.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.0E-07	3.7E-07	mg/kg-day	5.0E-05	mg/kg-day	7.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	5.4E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	1.0E+00	mg/kg-day	6.3E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.3E-03
				Arsenic	1E+01	mg/kg	8.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-06	9.6E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
				Cadmium (other media)	4E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	6.0E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	1E+02	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	1.0E-04	mg/kg-day	6.4E-03
				Thallium	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	3E+01	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
			Exp. Route Total								5E-06					2E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.3E-10	6.1E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.2E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.9E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.4E-07	3.2E-07	mg/kg-day	5.0E-05	mg/kg-day	6.5E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03
				Cadmium (other media)	4E+00	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02
		Exposure Point Total									9E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	5.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.4E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	3.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.1E-09	3.6E-08	mg/kg-day	5.0E-04	mg/kg-day	7.2E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	1.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	1.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03
				Aluminum	2E+03	ug/L	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-02	mg/kg-day	5.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.2E-04
				Chromium	9E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	7.5E-05	mg/kg-day	6.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								9E-08					2E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.3E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.5E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.3E-05
				Chrysene	2E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-02	mg/kg-day	7.1E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	6.2E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	1.5E-11	7.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	4.7E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.7E-11	5.5E-10	mg/kg-day	5.0E-04	mg/kg-day	1.1E-06
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	3.1E-11	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.8E-10	3.6E-10	mg/kg-day	1.3E-05	mg/kg-day	2.8E-05
				Aluminum	2E+03	ug/L	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	1.0E-02	mg/kg-day	2.6E-02
				Arsenic	5E+00	ug/L	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.4E-03
				Chromium	9E+00	ug/L	9.1E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.5E-05	mg/kg-day	1.4E-02
				Cobalt	7E-01	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	3.0E-04	mg/kg-day	2.8E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-01	mg/kg-day	6.6E-04
				Lead	9E+00	ug/L	9.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-02	mg/kg-day	5.3E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	4.5E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03
			Exp. Route Total								1E-07					5E-02
		Exposure Point Total									2E-07					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
			Exp. Route Total								2E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.43.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.7E-06
				Carbazole	1E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.1E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.0E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	3.0E-02	mg/kg-day	7.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	9.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.1E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	5E-01	mg/kg	7.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-07	9.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Cadmium (other media)	4E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	1.0E-03	mg/kg-day	7.8E-04
				Chromium	2E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.9E-03
				Copper	1E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.8E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	7.0E-01	mg/kg-day	4.6E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	8E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	1.0E-04	mg/kg-day	1.6E-03
				Thallium	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.6E-04
				Vanadium	3E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	7.0E-03	mg/kg-day	7.4E-04
				Zinc	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	3.0E-01	mg/kg-day	8.1E-05
			Exp. Route Total								1E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	5.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	2.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.3E-02
				Dieldrin	5E-01	mg/kg	1.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.2E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	7.0E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	2.5E-10	8.2E-09	mg/kg-day	5.0E-04	mg/kg-day	1.6E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	4.9E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	4.5E-09	5.7E-09	mg/kg-day	1.3E-05	mg/kg-day	4.4E-04
				Aluminum	7E+02	ug/L	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	1.0E-02	mg/kg-day	1.0E-03
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	4.3E-10	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04
			Exp. Route Total								2E-08					4E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.4E-09	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.8E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05
				Chrysene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.4E-12	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	4.8E-10	mg/kg-day	N/A	N/A	N/A	5.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.9E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	2.1E-11	mg/kg-day	2.4E-01	(mg/kg-day) $^{-1}$	5.2E-12	2.5E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.1E-11	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	3.8E-12	1.3E-10	mg/kg-day	5.0E-04	mg/kg-day	2.5E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	9.7E-12	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.8E-11	1.1E-10	mg/kg-day	1.3E-05	mg/kg-day	8.7E-06
				Aluminum	7E+02	ug/L	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	1.0E-02	mg/kg-day	4.6E-03
				Arsenic	3E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.7E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				Cadmium (other media)	4E-01	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	9.0E-04
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	7E-01	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04
				Lead	4E+00	ug/L	2.3E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	9.0E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.5E-04
			Exp. Route Total								4E-08					1E-02
		Exposure Point Total									6E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03
		Exposure Point Total									9E-07					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

TABLE 7.43.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.44.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.0E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.5E-05
				Carbazole	1E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	8.1E-08	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.3E-08	4.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.0E-07	3.7E-07	mg/kg-day	5.0E-05	mg/kg-day	7.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	5.4E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	1.0E+00	mg/kg-day	6.3E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.3E-03
				Arsenic	1E+01	mg/kg	8.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-06	9.6E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
				Cadmium (other media)	4E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	6.0E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	1E+02	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	1.0E-04	mg/kg-day	6.4E-03
				Thallium	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	3E+01	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
			Exp. Route Total								5E-06					2E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.2E-08	6.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.3E-10	6.1E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.2E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.44.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	8.9E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.4E-07	3.2E-07	mg/kg-day	5.0E-05	mg/kg-day	6.5E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.3E-07	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03
				Cadmium (other media)	4E+00	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02
		Exposure Point Total									9E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.5E-08	3.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.44.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	6.7E-10	2.2E-08	mg/kg-day	5.0E-04	mg/kg-day	4.5E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	9.7E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	8.8E-09	1.1E-08	mg/kg-day	1.3E-05	mg/kg-day	8.7E-04
				Aluminum	2E+03	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	9E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	7.5E-05	mg/kg-day	3.8E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-08					1E-02
		Exposure Point Total									5E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02

TABLE 7.44.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
			Exp. Route Total								2E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02
		Exposure Point Total									4E-06					1E-01

TABLE 7.44.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.44.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.1E-10	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.7E-06
				Carbazole	1E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.1E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.0E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	3.0E-02	mg/kg-day	7.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	9.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.1E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	5E-01	mg/kg	7.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-07	9.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Cadmium (other media)	4E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	1.0E-03	mg/kg-day	7.8E-04
				Chromium	2E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.9E-03
				Copper	1E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.8E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	7.0E-01	mg/kg-day	4.6E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	8E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	1.0E-04	mg/kg-day	1.6E-03
				Thallium	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.6E-04
				Vanadium	3E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	7.0E-03	mg/kg-day	7.4E-04
				Zinc	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	3.0E-01	mg/kg-day	8.1E-05
			Exp. Route Total								1E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.7E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	5.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.44.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.2E-08	2.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.3E-02
				Dieldrin	5E-01	mg/kg	1.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.2E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.6E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)													
				Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	8.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-08	9.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.44.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	4.3E-10	mg/kg-day	3.5E-01	(mg/kg-day) $^{-1}$	1.5E-10	5.1E-09	mg/kg-day	5.0E-04	mg/kg-day	1.0E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	3.0E-10	mg/kg-day	9.1E+00	(mg/kg-day) $^{-1}$	2.7E-09	3.5E-09	mg/kg-day	1.3E-05	mg/kg-day	2.7E-04
				Aluminum	7E+02	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-02	mg/kg-day	6.2E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-08					2E-03
		Exposure Point Total									1E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion													
				Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03

TABLE 7.44.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03
		Exposure Point Total									9E-07					2E-02

TABLE 7.44.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.45.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-06	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Iron	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Thallium	1E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	8.0E-05	mg/kg-day	5.0E-03
			Exp. Route Total								2E-06					2E-02
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	2.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.0E-08	6.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.1E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.8E-09	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	3.2E-09	5.2E-09	mg/kg-day	6.0E-04	mg/kg-day	8.7E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								3E-08					3E-04
		Exposure Point Total									3E-08					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.3E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.4E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	5.0E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.45.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	5.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	7.6E-04
				Aluminum	2E+04	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	8E+00	mg/kg	5.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.9E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Chromium	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.7E-03
				Cobalt	1E+01	mg/kg	9.3E-07	mg/kg-day	N/A	N/A	N/A	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.8E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	7.0E-02	mg/kg-day	1.8E-03
				Thallium	4E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	8.0E-05	mg/kg-day	9.4E-04
				Vanadium	4E+01	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	8.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03
			Exp. Route Total								2E-06					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.8E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.8E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.6E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.2E-08	4.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.3E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.2E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					6E-03
		Exposure Point Total									6E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.45.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-09	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	8.0E-05	mg/kg-day	8.3E-04
			Exp. Route Total								2E-07					3E-03
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-09	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.2E-08	9.7E-08	mg/kg-day	3.0E-04	mg/kg-day	3.2E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								7E-08					3E-04
		Exposure Point Total									3E-07					4E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	9.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.3E-08	3.1E-06	mg/kg-day	2.0E-02	mg/kg-day	1.6E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	7.4E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	1.3E-09	2.6E-09	mg/kg-day	6.0E-04	mg/kg-day	4.3E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					2E-04
		Exposure Point Total									1E-08					2E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.3E-09	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.0E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.45.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04
				Aluminum	2E+04	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.8E-04	mg/kg-day	1.0E+00	mg/kg-day	8.8E-04
				Antimony	1E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	4.0E-04	mg/kg-day	1.4E-04
				Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Chromium	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-03	mg/kg-day	9.3E-04
				Cobalt	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Iron	3E+04	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	9.2E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	7.0E-02	mg/kg-day	4.6E-04
				Thallium	4E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	8.0E-05	mg/kg-day	2.4E-04
				Vanadium	4E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
			Exp. Route Total								4E-07					9E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.1E-07	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.5E-09	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.9E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	6.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-09	2.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-03
		Exposure Point Total									2E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.46.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.4E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-06	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Iron	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Thallium	1E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	8.0E-05	mg/kg-day	5.0E-03
			Exp. Route Total								2E-06					2E-02
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-08	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.6E-08	9.5E-06	mg/kg-day	2.0E-02	mg/kg-day	4.8E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	2.7E-09	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	4.9E-09	7.9E-09	mg/kg-day	6.0E-04	mg/kg-day	1.3E-05
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.0E-02	mg/kg-day	1.0E-04
			Exp. Route Total								5E-08					6E-04
			Ingestion (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	4.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	5.7E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				Chrysene	1E-01	ug/L	2.4E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.7E-11	6.9E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.0E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	1.9E-10	3.1E-10	mg/kg-day	6.0E-04	mg/kg-day	5.1E-07
				Arsenic	2E+00	ug/L	3.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.2E-08	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04
				Cobalt	2E+00	ug/L	4.4E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.3E-04
				Cyanide	9E+01	ug/L	2.0E-06	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04

TABLE 7.46.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+03	ug/L	3.5E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-04
				Manganese (other media)	3E+02	ug/L	6.9E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
			Exp. Route Total								5E-08					1E-03
		Exposure Point Total									1E-07					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.8E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.7E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.3E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.4E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	5.0E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	5.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	7.6E-04
				Aluminum	2E+04	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	8E+00	mg/kg	5.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.9E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Chromium	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.7E-03
				Cobalt	1E+01	mg/kg	9.3E-07	mg/kg-day	N/A	N/A	N/A	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.8E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	7.0E-02	mg/kg-day	1.8E-03
				Thallium	4E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	8.0E-05	mg/kg-day	9.4E-04
				Vanadium	4E+01	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	8.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03
			Exp. Route Total								2E-06					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-06	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.8E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.8E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.6E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.2E-08	4.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.3E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.2E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A

TABLE 7.46.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					6E-03
		Exposure Point Total									6E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
							Total of Receptor Risks Across All Media				N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.46.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.3E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-09	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	8.0E-05	mg/kg-day	8.3E-04
			Exp. Route Total								2E-07					3E-03
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-09	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.2E-08	9.7E-08	mg/kg-day	3.0E-04	mg/kg-day	3.2E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								7E-08					3E-04
		Exposure Point Total									3E-07					4E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.9E-08	4.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.4E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.1E-09	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	2.0E-09	3.9E-09	mg/kg-day	6.0E-04	mg/kg-day	6.6E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	7.0E-02	mg/kg-day	5.2E-05
			Exp. Route Total								2E-08					3E-04
			Ingestion (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.4E-10	5.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.0E-06
				Chrysene	5E-02	ug/L	4.8E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.5E-12	1.7E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	4.4E-11	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	7.9E-11	1.5E-10	mg/kg-day	6.0E-04	mg/kg-day	2.5E-07
				Arsenic	2E+00	ug/L	1.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-08	5.0E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Cobalt	2E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	3.0E-04	mg/kg-day	2.1E-04
				Cyanide	9E+01	ug/L	8.2E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	2.0E-02	mg/kg-day	1.4E-04

TABLE 7.46.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+03	ug/L	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-01	mg/kg-day	7.2E-05
				Manganese (other media)	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-04
			Exp. Route Total								2E-08					7E-04
		Exposure Point Total									4E-08					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	7.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-08	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.3E-09	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.0E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04
				Aluminum	2E+04	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.8E-04	mg/kg-day	1.0E+00	mg/kg-day	8.8E-04
				Antimony	1E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	4.0E-04	mg/kg-day	1.4E-04
				Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Chromium	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-03	mg/kg-day	9.3E-04
				Cobalt	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Iron	3E+04	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	9.2E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	7.0E-02	mg/kg-day	4.6E-04
				Thallium	4E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	8.0E-05	mg/kg-day	2.4E-04
				Vanadium	4E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
			Exp. Route Total								4E-07					9E-03
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.9E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.1E-07	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.5E-09	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.9E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	6.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.7E-09	2.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A

TABLE 7.46.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-03
		Exposure Point Total									2E-06					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
							Total of Receptor Risks Across All Media				N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.47.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	9.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	5.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.5E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	9E+03	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Thallium	1E+00	mg/kg	6.8E-08	mg/kg-day	N/A	N/A	N/A	8.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								5E-07					5E-03
		Exposure Point Total									1E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.6E-09	7.2E-06	mg/kg-day	2.0E-02	mg/kg-day	3.6E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.1E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	9.2E-10	5.9E-09	mg/kg-day	6.0E-04	mg/kg-day	9.9E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					4E-04
		Exposure Point Total									1E-08					4E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.7E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.4E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	6.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.7E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.47.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.2E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03
				Aluminum	2E+04	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03
				Antimony	1E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	8E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-07	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Chromium	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	1E+01	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Iron	3E+04	mg/kg	9.4E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	6E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	3.7E-03
				Thallium	4E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.9E-03
				Vanadium	4E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03
			Exp. Route Total								2E-06					7E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.0E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	6.7E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	4.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.1E-09	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					7E-03
		Exposure Point Total									5E-06					8E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.47.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	7.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	8.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.7E-03
				Iron	8E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Thallium	7E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03
			Exp. Route Total								2E-07					7E-03
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.6E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	6.4E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								2E-07					1E-03
		Exposure Point Total									3E-07					8E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.3E-09	3.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	2.5E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	4.6E-10	3.0E-09	mg/kg-day	6.0E-04	mg/kg-day	4.9E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								5E-09					2E-04
		Exposure Point Total									5E-09					2E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.47.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	7E-02	mg/kg	6.5E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.5E-10	7.6E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				Aluminum	2E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	1E+00	mg/kg	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	8E+00	mg/kg	6.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.9E-08	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Chromium	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03
				Cobalt	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.5E-03
				Iron	3E+04	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	2.7E-03	mg/kg-day	7.0E-01	mg/kg-day	3.9E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	5.5E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	7.0E-02	mg/kg-day	9.2E-04
				Thallium	4E-01	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	8.0E-05	mg/kg-day	4.7E-04
				Vanadium	4E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
			Exp. Route Total								5E-07					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.4E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.7E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	4.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.8E-11	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.48.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	9.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	5.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.5E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	9E+03	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Thallium	1E+00	mg/kg	6.8E-08	mg/kg-day	N/A	N/A	N/A	8.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								5E-07					5E-03
		Exposure Point Total									1E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	5.8E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	8.3E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	1.5E-09	9.6E-09	mg/kg-day	6.0E-04	mg/kg-day	1.6E-05
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								2E-08					6E-04
			Ingestion (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.9E-10	2.4E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Chrysene	1E-01	ug/L	1.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.6E-11	1.4E-08	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.2E-11	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	9.4E-11	6.1E-10	mg/kg-day	6.0E-04	mg/kg-day	1.0E-06
				Arsenic	2E+00	ug/L	1.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.6E-08	2.0E-07	mg/kg-day	3.0E-04	mg/kg-day	6.7E-04
				Cobalt	2E+00	ug/L	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.5E-04
				Cyanide	9E+01	ug/L	9.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.7E-04

TABLE 7.48.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+03	ug/L	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-01	mg/kg-day	2.9E-04
				Manganese (other media)	3E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.8E-04
			Exp. Route Total								3E-08					3E-03
		Exposure Point Total									4E-08					4E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.7E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-07	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.4E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	6.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.2E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.7E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.2E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03
				Aluminum	2E+04	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03
				Antimony	1E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	8E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-07	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Chromium	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	1E+01	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Iron	3E+04	mg/kg	9.4E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	6E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	3.7E-03
				Thallium	4E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.9E-03
				Vanadium	4E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03
			Exp. Route Total								2E-06					7E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.0E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	6.7E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	4.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.1E-09	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A

TABLE 7.48.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					7E-03
		Exposure Point Total									5E-06					8E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.48.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion													
				Benzo(a)pyrene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.2E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.1E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	7.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.0E-07	8.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.7E-03
				Iron	8E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Thallium	7E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03
			Exp. Route Total								2E-07					7E-03
			Dermal													
				Benzo(a)pyrene	1E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.6E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	6.4E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								2E-07					1E-03
		Exposure Point Total									3E-07					8E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.0E-09	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	4.1E-10	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	7.4E-10	4.8E-09	mg/kg-day	6.0E-04	mg/kg-day	8.0E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								8E-09					3E-04
			Ingestion (swimming)													
				Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				Chrysene	5E-02	ug/L	2.9E-10	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.3E-12	3.4E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	2.6E-11	mg/kg-day	1.8E+00	(mg/kg-day) $^{-1}$	4.7E-11	3.1E-10	mg/kg-day	6.0E-04	mg/kg-day	5.1E-07
				Arsenic	2E+00	ug/L	8.6E-09	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04
				Cobalt	2E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.3E-04
				Cyanide	9E+01	ug/L	4.9E-07	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04

TABLE 7.48.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	2E+03	ug/L	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-04
				Manganese (other media)	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
			Exp. Route Total								1E-08					1E-03
		Exposure Point Total									2E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.9E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.2E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.0E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-08	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.9E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	6.5E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.5E-10	7.6E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				Aluminum	2E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	1E+00	mg/kg	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	8E+00	mg/kg	6.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.9E-08	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Chromium	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03
				Cobalt	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.5E-03
				Iron	3E+04	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	2.7E-03	mg/kg-day	7.0E-01	mg/kg-day	3.9E-03
				Lead												
				Manganese (other media)	6E+02	mg/kg	5.5E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	7.0E-02	mg/kg-day	9.2E-04
				Thallium	4E-01	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	8.0E-05	mg/kg-day	4.7E-04
				Vanadium	4E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
			Exp. Route Total								5E-07					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.4E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.7E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	4.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	9.8E-11	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Aroclor-1260	7E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.3E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	8E+00	mg/kg	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A

TABLE 7.48.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.49.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-06	5.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.8E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-05	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-06	6.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-02	mg/kg-day	1.0E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.5E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.1E-06	4.1E-04	mg/kg-day	2.0E-02	mg/kg-day	2.1E-02
				Carbazole	5E-01	mg/kg	1.6E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.3E-09	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.1E-08	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.9E-06	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	4.0E-03	mg/kg-day	5.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.9E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	3.0E-02	mg/kg-day	2.8E-04
				Aroclor-1248	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-07	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	6.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.2E-07	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.4E-03
				Aroclor-1260	2E-01	mg/kg	8.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	6.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.7E-07	1.7E-07	mg/kg-day	5.0E-05	mg/kg-day	3.4E-03
				Dioxin TEQ	5E-05	mg/kg	1.6E-11	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.0E-06	4.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	3.0E-03	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Arsenic	1E+01	mg/kg	4.5E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.8E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	3.1E-06	mg/kg-day	N/A	N/A	N/A	8.8E-06	mg/kg-day	1.0E-03	mg/kg-day	8.8E-03
				Chromium	3E+02	mg/kg	1.0E-04	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	3.0E-03	mg/kg-day	9.4E-02
				Cobalt	8E+00	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Copper	3E+02	mg/kg	9.0E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	4.0E-02	mg/kg-day	6.3E-03
				Iron	3E+04	mg/kg	1.0E-02	mg/kg-day	N/A	N/A	N/A	2.8E-02	mg/kg-day	7.0E-01	mg/kg-day	4.0E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	8.2E-04	mg/kg-day	7.0E-02	mg/kg-day	1.2E-02
				Mercury (other media)	7E-01	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.7E-07	mg/kg-day	1.0E-04	mg/kg-day	6.7E-03
				Thallium	2E+00	mg/kg	8.1E-07	mg/kg-day	N/A	N/A	N/A	2.3E-06	mg/kg-day	8.0E-05	mg/kg-day	2.8E-02
				Vanadium	3E+01	mg/kg	9.6E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-03	mg/kg-day	3.9E-03
				Zinc	5E+02	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	3.0E-01	mg/kg-day	1.8E-03
			Exp. Route Total								3E-05					3E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	1.6E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-06	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.6E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-05	4.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.4E-06	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-02	mg/kg-day	8.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-08	9.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-06	2.7E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Carbazole	5E-01	mg/kg	1.4E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.8E-09	3.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.49.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.6E-09	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	3.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.8E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.1E-06	mg/kg-day	3.0E-02	mg/kg-day	2.4E-04
				Aroclor-1248	4E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.3E-07	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1254	2E-01	mg/kg	5.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-07	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Aroclor-1260	2E-01	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	2E-01	mg/kg	4.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.4E-07	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.2E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.0E-07	8.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.3E-06	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03
				Cadmium (other media)	9E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	2.5E-05	mg/kg-day	2.3E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-05					6E-02
		Exposure Point Total									5E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.49.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.1E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-07	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	9.0E-03
				Carbazole	5E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.8E-09	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.2E-04
				Aroclor-1248	4E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03
				Aroclor-1254	2E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.5E-09	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	2E-01	mg/kg	9.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-07	7.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	4E-05	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.7E-07	1.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Arsenic	1E+01	mg/kg	7.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-06	5.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.9E-02
				Cadmium (other media)	9E+00	mg/kg	4.9E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	3E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	4.1E-02
				Cobalt	8E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	3E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	3E+04	mg/kg	1.6E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	4.6E-05	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	7.0E-02	mg/kg-day	5.1E-03
				Mercury (other media)	7E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	1.0E-04	mg/kg-day	2.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	5E+02	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.7E-04
			Exp. Route Total								5E-06					1E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.7E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.6E-06	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.3E-07	4.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.3E-06	mg/kg-day	3.0E-02	mg/kg-day	7.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.6E-09	8.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	3.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.3E-07	2.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02
				Carbazole	5E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.9E-10	3.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.49.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.0E-09	3.2E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.4E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04
				Aroclor-1248	4E-01	mg/kg	3.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.7E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Dieldrin	2E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.0E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	4E-05	mg/kg	8.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.0E-07	6.3E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.3E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.4E-03
				Cadmium (other media)	9E+00	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.50.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.5E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-08	6.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	3.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.2E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	1E-01	mg/kg	5.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.7E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	4.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.6E-07	5.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	5E-01	mg/kg	1.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.5E-06	4.4E-07	mg/kg-day	5.0E-05	mg/kg-day	8.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.7E-03	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	7.6E-03
				Antimony	1E+00	mg/kg	3.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-04	mg/kg-day	2.7E-03
				Arsenic	1E+01	mg/kg	4.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	6.2E-06	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Cadmium (other media)	4E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	4E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				Copper	1E+02	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03
				Iron	2E+04	mg/kg	5.6E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-02	mg/kg-day	6.5E-03
				Mercury (other media)	8E-01	mg/kg	2.8E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	1.0E-04	mg/kg-day	7.7E-03
				Thallium	2E-01	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	8.0E-05	mg/kg-day	2.2E-03
				Vanadium	3E+01	mg/kg	8.8E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.5E-03
				Zinc	1E+02	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-01	mg/kg-day	3.9E-04
			Exp. Route Total								1E-05					2E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.5E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-09	5.5E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	1E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.8E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.50.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-07	4.7E-07	mg/kg-day	2.0E-05	mg/kg-day	2.4E-02
				Dieldrin	5E-01	mg/kg	1.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-06	2.9E-07	mg/kg-day	5.0E-05	mg/kg-day	5.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.2E-06	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	7.6E-03
				Cadmium (other media)	4E+00	mg/kg	8.8E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	9.9E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					4E-02
		Exposure Point Total									2E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.50.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.0E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.9E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.7E-09	2.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.6E-10	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	1E-01	mg/kg	8.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.6E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	7.4E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.9E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	4.0E-07	1.9E-07	mg/kg-day	5.0E-05	mg/kg-day	3.9E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	3.3E-03
				Antimony	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	4.8E-07	mg/kg-day	4.0E-04	mg/kg-day	1.2E-03
				Arsenic	1E+01	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.7E-07	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	4E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	4E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				Copper	1E+02	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	8.8E-04	mg/kg-day	N/A	N/A	N/A	6.8E-03	mg/kg-day	7.0E-01	mg/kg-day	9.7E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	2.9E-03
				Mercury (other media)	8E-01	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03
				Thallium	2E-01	mg/kg	9.9E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	8.0E-05	mg/kg-day	9.6E-04
				Vanadium	3E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-01	mg/kg-day	1.7E-04
			Exp. Route Total								2E-06					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.5E-08	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.4E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.6E-09	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.8E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.50.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	5.3E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.3E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.9E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.7E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.51.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.1E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.0E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.0E-08	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.1E-09	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.7E-10	1.4E-06	mg/kg-day	2.0E-02	mg/kg-day	6.9E-05
				Carbazole	1E-01	mg/kg	3.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.8E-11	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	4.0E-03	mg/kg-day	6.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-01	mg/kg-day	6.3E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.4E-08	8.4E-07	mg/kg-day	6.0E-05	mg/kg-day	1.4E-02
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.7E-07	7.3E-07	mg/kg-day	5.0E-05	mg/kg-day	1.5E-02
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	1.2E-02
				Antimony	1E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	4.0E-04	mg/kg-day	4.5E-03
				Arsenic	1E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.1E-07	1.9E-05	mg/kg-day	3.0E-04	mg/kg-day	6.3E-02
				Cadmium (other media)	4E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-03	mg/kg-day	6.2E-03
				Chromium	2E+02	mg/kg	5.1E-06	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	9.0E-03	mg/kg-day	4.0E-02
				Cobalt	4E+00	mg/kg	9.7E-08	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Copper	1E+02	mg/kg	3.1E-06	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	4.0E-02	mg/kg-day	5.4E-03
				Iron	2E+04	mg/kg	3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-02	mg/kg-day	7.0E-01	mg/kg-day	3.7E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	8E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	1.0E-04	mg/kg-day	1.3E-02
				Thallium	2E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-04	mg/kg-day	3.6E-04
				Vanadium	3E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	7.0E-03	mg/kg-day	5.8E-03
				Zinc	1E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.4E-04
			Exp. Route Total								9E-07					2E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.1E-09	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.0E-08	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.2E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.4E-10	4.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-09	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.2E-11	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.1E-05
				Carbazole	1E-01	mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.6E-11	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.2E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.7E-09	6.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.51.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-01	mg/kg-day	2.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.0E-08	3.5E-07	mg/kg-day	6.0E-05	mg/kg-day	5.9E-03
				Dieldrin	5E-01	mg/kg	3.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.0E-08	2.2E-07	mg/kg-day	5.0E-05	mg/kg-day	4.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.7E-08	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.7E-10	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	2.5E-05	mg/kg-day	7.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-07					2E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	1E+00	mg/kg	1.5E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.6E-13	1.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.5E-09	ug/m3	1.1E-03	(ug/m3) $^{-1}$	1.6E-12	1.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.1E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	2.3E-13	1.5E-07	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	8.0E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	8.8E-14	5.6E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.0E-09	ug/m3	NA	N/A	N/A	7.1E-08	ug/m3	N/A	N/A	N/A
				Carbazole	1E-01	mg/kg	1.8E-10	ug/m3	N/A	N/A	N/A	1.2E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.2E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	2.6E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.0E-10	ug/m3	N/A	N/A	N/A	1.4E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.4E-13	8.6E-08	ug/m3	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.4E-09	ug/m3	N/A	N/A	N/A	9.8E-08	ug/m3	3.0E+00	ug/m3	3.3E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	5E-01	mg/kg	6.2E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	3.6E-13	4.4E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	5E-01	mg/kg	5.4E-10	ug/m3	4.6E-03	(ug/m3) $^{-1}$	2.5E-12	3.8E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.51.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	9.3E-06	ug/m3	N/A	N/A	N/A	6.5E-04	ug/m3	N/A	N/A	N/A
				Antimony	1E+00	mg/kg	1.3E-09	ug/m3	N/A	N/A	N/A	9.4E-08	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	1.4E-08	ug/m3	4.3E-03	$(ug/m3)^{-1}$	6.1E-11	9.9E-07	ug/m3	1.5E-03	ug/m3	6.6E-04
				Cadmium (other media)	4E+00	mg/kg	4.6E-09	ug/m3	1.8E-03	$(ug/m3)^{-1}$	8.3E-12	3.2E-07	ug/m3	1.0E-02	ug/m3	3.2E-05
				Chromium	2E+02	mg/kg	2.7E-07	ug/m3	8.4E-02	$(ug/m3)^{-1}$	2.2E-08	1.9E-05	ug/m3	3.0E-01	ug/m3	6.2E-05
				Cobalt	4E+00	mg/kg	5.0E-09	ug/m3	9.0E-03	$(ug/m3)^{-1}$	4.5E-11	3.5E-07	ug/m3	2.0E-02	ug/m3	1.8E-05
				Copper	1E+02	mg/kg	1.6E-07	ug/m3	N/A	N/A	N/A	1.1E-05	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	1.9E-05	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.6E-07	ug/m3	N/A	N/A	N/A	3.9E-05	ug/m3	5.0E-02	ug/m3	7.9E-04
				Mercury (other media)	8E-01	mg/kg	9.4E-10	ug/m3	N/A	N/A	N/A	6.6E-08	ug/m3	3.0E-02	ug/m3	2.2E-06
				Thallium	2E-01	mg/kg	2.1E-10	ug/m3	N/A	N/A	N/A	1.5E-08	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	3.0E-08	ug/m3	N/A	N/A	N/A	2.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	1E+02	mg/kg	1.4E-07	ug/m3	N/A	N/A	N/A	1.0E-05	ug/m3	N/A	N/A	N/A
			Exp. Route Total								2E-08					2E-03
		Exposure Point Total									1E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.51.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion													
				Benzo(a)anthracene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.0E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	7.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.6E-10	5.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	9.7E-09	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-10	6.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	1E-01	mg/kg	1.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.4E-11	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.6E-09	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-01	mg/kg-day	3.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	6.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	6.0E-09	4.2E-07	mg/kg-day	6.0E-05	mg/kg-day	6.9E-03
				Dieldrin	5E-01	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.3E-08	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	8.9E-05	mg/kg-day	N/A	N/A	N/A	6.2E-03	mg/kg-day	1.0E+00	mg/kg-day	6.2E-03
				Antimony	1E+00	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	4.0E-04	mg/kg-day	2.2E-03
				Arsenic	1E+01	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-07	9.4E-06	mg/kg-day	3.0E-04	mg/kg-day	3.1E-02
				Cadmium (other media)	4E+00	mg/kg	4.4E-08	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	9.0E-03	mg/kg-day	2.0E-02
				Cobalt	4E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.1E-03
				Copper	1E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.4E-06	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	6.3E-07	mg/kg-day	1.0E-04	mg/kg-day	6.3E-03
				Thallium	2E-01	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-04	mg/kg-day	1.8E-04
				Vanadium	3E+01	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
			Exp. Route Total								4E-07					1E-01
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	5.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.0E-09	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.7E-09	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.2E-10	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.9E-09	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-11	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	1E-01	mg/kg	6.6E-10	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-11	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.0E-09	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.51.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	3.0E-01	mg/kg-day	1.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-09	1.8E-07	mg/kg-day	6.0E-05	mg/kg-day	2.9E-03
				Dieldrin	5E-01	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.5E-08	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-08	8.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03
				Cadmium (other media)	4E+00	mg/kg	1.3E-10	mg/kg-day	N/A	N/A	N/A	9.2E-09	mg/kg-day	2.5E-05	mg/kg-day	3.7E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-07					8E-03
			Inhalation of fugitive dust													
				Benzo(a)anthracene	1E+00	mg/kg	7.3E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	8.1E-14	5.1E-08	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	7.2E-10	ug/m3	1.1E-03	(ug/m3) $^{-1}$	7.9E-13	5.1E-08	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.2E-13	7.3E-08	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.0E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	4.4E-14	2.8E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.1E-10	ug/m3	NA	N/A	N/A	3.5E-08	ug/m3	N/A	N/A	N/A
				Carbazole	1E-01	mg/kg	8.7E-11	ug/m3	N/A	N/A	N/A	6.1E-09	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	1.3E-13	7.6E-09	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.7E-11	ug/m3	N/A	N/A	N/A	6.8E-09	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	6.7E-14	4.3E-08	ug/m3	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.9E-10	ug/m3	N/A	N/A	N/A	4.9E-08	ug/m3	3.0E+00	ug/m3	1.6E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	5E-01	mg/kg	3.1E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	1.8E-13	2.2E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	5E-01	mg/kg	2.7E-10	ug/m3	4.6E-03	(ug/m3) $^{-1}$	1.2E-12	1.9E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.51.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	4.6E-06	ug/m3	N/A	N/A	N/A	3.2E-04	ug/m3	N/A	N/A	N/A
				Antimony	1E+00	mg/kg	6.7E-10	ug/m3	N/A	N/A	N/A	4.7E-08	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	7.0E-09	ug/m3	4.3E-03	$(ug/m3)^{-1}$	3.0E-11	4.9E-07	ug/m3	1.5E-03	ug/m3	3.3E-04
				Cadmium (other media)	4E+00	mg/kg	2.3E-09	ug/m3	1.8E-03	$(ug/m3)^{-1}$	4.1E-12	1.6E-07	ug/m3	1.0E-02	ug/m3	1.6E-05
				Chromium	2E+02	mg/kg	1.3E-07	ug/m3	8.4E-02	$(ug/m3)^{-1}$	1.1E-08	9.3E-06	ug/m3	3.0E-01	ug/m3	3.1E-05
				Cobalt	4E+00	mg/kg	2.5E-09	ug/m3	9.0E-03	$(ug/m3)^{-1}$	2.3E-11	1.8E-07	ug/m3	2.0E-02	ug/m3	8.8E-06
				Copper	1E+02	mg/kg	7.9E-08	ug/m3	N/A	N/A	N/A	5.6E-06	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	9.5E-06	ug/m3	N/A	N/A	N/A	6.6E-04	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.8E-07	ug/m3	N/A	N/A	N/A	1.9E-05	ug/m3	5.0E-02	ug/m3	3.9E-04
				Mercury (other media)	8E-01	mg/kg	4.7E-10	ug/m3	N/A	N/A	N/A	3.3E-08	ug/m3	3.0E-02	ug/m3	1.1E-06
				Thallium	2E-01	mg/kg	1.1E-10	ug/m3	N/A	N/A	N/A	7.5E-09	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	1.5E-08	ug/m3	N/A	N/A	N/A	1.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	1E+02	mg/kg	7.1E-08	ug/m3	N/A	N/A	N/A	4.9E-06	ug/m3	N/A	N/A	N/A
			Exp. Route Total								1E-08					8E-04
		Exposure Point Total									6E-07					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.52.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.9E-08	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.0E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.6E-08	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-09	1.6E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.9E-09	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.3E-04
				Carbazole	3E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.3E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.3E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.5E-08	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-01	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	8.9E-07	mg/kg-day	6.0E-05	mg/kg-day	1.5E-02
				Dieldrin	5E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.8E-07	8.1E-07	mg/kg-day	5.0E-05	mg/kg-day	1.6E-02
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	9E+03	mg/kg	2.1E-04	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	1.5E-02
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	3.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.5E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02
				Cadmium (other media)	9E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	1.0E-03	mg/kg-day	1.5E-02
				Chromium	2E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	9.0E-03	mg/kg-day	2.8E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	2E+02	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	3.2E-04	mg/kg-day	4.0E-02	mg/kg-day	8.0E-03
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	3.3E-02	mg/kg-day	7.0E-01	mg/kg-day	4.8E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-02	mg/kg-day	2.3E-02
				Mercury (other media)	5E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	1.0E-04	mg/kg-day	8.1E-03
				Thallium	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	8.0E-04	mg/kg-day	3.0E-03
				Vanadium	2E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	7.0E-03	mg/kg-day	5.6E-03
				Zinc	3E+02	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
			Exp. Route Total								1E-06					3E-01
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-08	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	6.7E-10	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	8.7E-10	4.4E-06	mg/kg-day	2.0E-02	mg/kg-day	2.2E-04
				Carbazole	3E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.9E-11	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.2E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.1E-10	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.8E-09	9.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.52.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-01	mg/kg-day	5.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	5.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	3.7E-07	mg/kg-day	6.0E-05	mg/kg-day	6.2E-03
				Dieldrin	5E-01	mg/kg	3.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.5E-08	2.4E-07	mg/kg-day	5.0E-05	mg/kg-day	4.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.3E-03
				Cadmium (other media)	9E+00	mg/kg	6.4E-10	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-07					2E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	2E+00	mg/kg	2.8E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	3.0E-13	1.9E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.9E-09	ug/m3	1.1E-03	(ug/m3) $^{-1}$	3.2E-12	2.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.0E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	4.4E-13	2.8E-07	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.3E-13	8.5E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.1E-08	ug/m3	NA	N/A	N/A	7.6E-07	ug/m3	N/A	N/A	N/A
				Carbazole	3E-01	mg/kg	3.3E-10	ug/m3	N/A	N/A	N/A	2.3E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.9E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	7.1E-13	4.1E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.1E-10	ug/m3	N/A	N/A	N/A	7.4E-09	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.8E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	2.0E-13	1.3E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.9E-09	ug/m3	N/A	N/A	N/A	2.0E-07	ug/m3	3.0E+00	ug/m3	6.7E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	6E-01	mg/kg	6.6E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	3.8E-13	4.6E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	5E-01	mg/kg	6.0E-10	ug/m3	4.6E-03	(ug/m3) $^{-1}$	2.8E-12	4.2E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.52.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	9E+03	mg/kg	1.1E-05	ug/m3	N/A	N/A	N/A	7.6E-04	ug/m3	N/A	N/A	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	1.6E-08	ug/m3	4.3E-03	$(ug/m3)^{-1}$	6.7E-11	1.1E-06	ug/m3	1.5E-03	ug/m3	7.3E-04
				Cadmium (other media)	9E+00	mg/kg	1.1E-08	ug/m3	1.8E-03	$(ug/m3)^{-1}$	2.0E-11	7.7E-07	ug/m3	1.0E-02	ug/m3	7.7E-05
				Chromium	2E+02	mg/kg	1.9E-07	ug/m3	8.4E-02	$(ug/m3)^{-1}$	1.6E-08	1.3E-05	ug/m3	3.0E-01	ug/m3	4.4E-05
				Cobalt	ND	mg/kg	N/A	N/A	9.0E-03	$(ug/m3)^{-1}$	N/A	N/A	N/A	2.0E-02	ug/m3	N/A
				Copper	2E+02	mg/kg	2.4E-07	ug/m3	N/A	N/A	N/A	1.7E-05	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	2.5E-05	ug/m3	N/A	N/A	N/A	1.7E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.2E-06	ug/m3	N/A	N/A	N/A	8.3E-05	ug/m3	5.0E-02	ug/m3	1.7E-03
				Mercury (other media)	5E-01	mg/kg	6.0E-10	ug/m3	N/A	N/A	N/A	4.2E-08	ug/m3	3.0E-02	ug/m3	1.4E-06
				Thallium	2E+00	mg/kg	1.8E-09	ug/m3	N/A	N/A	N/A	1.3E-07	ug/m3	N/A	N/A	N/A
				Vanadium	2E+01	mg/kg	2.9E-08	ug/m3	N/A	N/A	N/A	2.0E-06	ug/m3	N/A	N/A	N/A
				Zinc	3E+02	mg/kg	3.3E-07	ug/m3	N/A	N/A	N/A	2.3E-05	ug/m3	N/A	N/A	N/A
			Exp. Route Total								2E-08					3E-03
		Exposure Point Total									2E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.52.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion													
				Benzo(a)anthracene	2E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-08	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	8.5E-10	8.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.1E-10	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.7E-05
				Carbazole	3E-01	mg/kg	3.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.3E-11	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	4.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.0E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.8E-09	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-01	mg/kg-day	5.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	3.5E-09	2.5E-07	mg/kg-day	6.0E-05	mg/kg-day	4.1E-03
				Dieldrin	1E-01	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	2.7E-08	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.7E-07	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	1E+02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	8.9E-05	mg/kg-day	9.0E-03	mg/kg-day	9.9E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	4.0E-02	mg/kg-day	3.0E-03
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.9E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	1.0E-04	mg/kg-day	3.0E-03
				Thallium	1E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	8.0E-04	mg/kg-day	1.2E-03
				Vanadium	2E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03
				Zinc	2E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-01	mg/kg-day	4.4E-04
			Exp. Route Total								4E-07					9E-02
			Dermal													
				Benzo(a)anthracene	2E+00	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.9E-09	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	5.8E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	7.6E-09	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.3E-10	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-09	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	9.2E-11	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	3E-01	mg/kg	1.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.5E-11	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.4E-09	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.52.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-01	mg/kg-day	2.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-09	1.0E-07	mg/kg-day	6.0E-05	mg/kg-day	1.7E-03
				Dieldrin	1E-01	mg/kg	5.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.1E-09	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.5E-08	7.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.7E-10	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.7E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-07					5E-03
			Inhalation of fugitive dust													
				Benzo(a)anthracene	2E+00	mg/kg	1.1E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.2E-13	7.5E-08	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-09	ug/m3	1.1E-03	(ug/m3) $^{-1}$	1.2E-12	7.4E-08	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.5E-13	9.7E-08	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	6.0E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	6.7E-14	4.2E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.1E-09	ug/m3	NA	N/A	N/A	8.0E-08	ug/m3	N/A	N/A	N/A
				Carbazole	3E-01	mg/kg	1.6E-10	ug/m3	N/A	N/A	N/A	1.1E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	2.1E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	2.6E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.3E-11	ug/m3	N/A	N/A	N/A	3.7E-09	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.2E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	6.9E-14	4.4E-08	ug/m3	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.2E-09	ug/m3	N/A	N/A	N/A	8.1E-08	ug/m3	3.0E+00	ug/m3	2.7E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	3E-01	mg/kg	1.8E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	1.0E-13	1.3E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	1E-01	mg/kg	8.7E-11	ug/m3	4.6E-03	(ug/m3) $^{-1}$	4.0E-13	6.1E-09	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.52.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	4.5E-06	ug/m3	N/A	N/A	N/A	3.1E-04	ug/m3	N/A	N/A	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	5.9E-09	ug/m3	4.3E-03	$(ug/m3)^{-1}$	2.5E-11	4.1E-07	ug/m3	1.5E-03	ug/m3	2.7E-04
				Cadmium (other media)	5E+00	mg/kg	2.9E-09	ug/m3	1.8E-03	$(ug/m3)^{-1}$	5.2E-12	2.0E-07	ug/m3	1.0E-02	ug/m3	2.0E-05
				Chromium	1E+02	mg/kg	6.6E-08	ug/m3	8.4E-02	$(ug/m3)^{-1}$	5.5E-09	4.6E-06	ug/m3	3.0E-01	ug/m3	1.5E-05
				Cobalt	ND	mg/kg	N/A	N/A	9.0E-03	$(ug/m3)^{-1}$	N/A	N/A	N/A	2.0E-02	ug/m3	N/A
				Copper	1E+02	mg/kg	8.8E-08	ug/m3	N/A	N/A	N/A	6.2E-06	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	9.9E-06	ug/m3	N/A	N/A	N/A	6.9E-04	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.0E-07	ug/m3	N/A	N/A	N/A	2.1E-05	ug/m3	5.0E-02	ug/m3	4.1E-04
				Mercury (other media)	4E-01	mg/kg	2.2E-10	ug/m3	N/A	N/A	N/A	1.5E-08	ug/m3	3.0E-02	ug/m3	5.1E-07
				Thallium	1E+00	mg/kg	7.1E-10	ug/m3	N/A	N/A	N/A	5.0E-08	ug/m3	N/A	N/A	N/A
				Vanadium	2E+01	mg/kg	1.2E-08	ug/m3	N/A	N/A	N/A	8.4E-07	ug/m3	N/A	N/A	N/A
				Zinc	2E+02	mg/kg	9.9E-08	ug/m3	N/A	N/A	N/A	6.9E-06	ug/m3	N/A	N/A	N/A
			Exp. Route Total								6E-09					7E-04
		Exposure Point Total									5E-07					9E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 7.53.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.0E-08	8.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.8E-07	8.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-07	1.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	3.0E-01	mg/kg-day	1.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.9E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.4E-07	6.8E-04	mg/kg-day	2.0E-02	mg/kg-day	3.4E-02
				Carbazole	5E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.2E-10	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	7.4E-10	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	4.0E-03	mg/kg-day	9.8E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-08	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-01	mg/kg-day	4.5E-05
				Aroclor-1248	4E-01	mg/kg	8.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	5.8E-07	mg/kg-day	6.0E-05	mg/kg-day	9.7E-03
				Aroclor-1254	2E-01	mg/kg	4.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.9E-09	2.8E-07	mg/kg-day	6.0E-05	mg/kg-day	4.6E-03
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.1E-08	4.0E-07	mg/kg-day	6.0E-05	mg/kg-day	6.7E-03
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	6.4E-08	2.8E-07	mg/kg-day	5.0E-05	mg/kg-day	5.6E-03
				Dioxin TEQ	5E-05	mg/kg	1.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.3E-07	7.3E-11	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	1.4E-02
				Arsenic	1E+01	mg/kg	3.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.5E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02
				Cadmium (other media)	9E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-03	mg/kg-day	1.4E-02
				Chromium	3E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	9.0E-03	mg/kg-day	5.1E-02
				Cobalt	8E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	4.0E-03
				Copper	3E+02	mg/kg	5.9E-06	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	4.0E-02	mg/kg-day	1.0E-02
				Iron	3E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-02	mg/kg-day	7.0E-01	mg/kg-day	6.6E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-02	mg/kg-day	1.9E-02
				Mercury (other media)	7E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-04	mg/kg-day	1.1E-02
				Thallium	2E+00	mg/kg	5.3E-08	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	8.0E-04	mg/kg-day	4.7E-03
				Vanadium	3E+01	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	7.0E-03	mg/kg-day	6.4E-03
				Zinc	5E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	3.0E-01	mg/kg-day	2.9E-03
			Exp. Route Total								2E-06					3E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.5E-08	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.4E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.1E-08	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-01	mg/kg-day	6.6E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	7.3E-10	7.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.1E-08	2.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.0E-02
				Carbazole	5E-01	mg/kg	4.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	8.5E-11	3.0E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.53.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.9E-10	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	6.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.8E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	7.6E-08	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	3.0E-01	mg/kg-day	1.8E-05
				Aroclor-1248	4E-01	mg/kg	3.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.0E-09	2.4E-07	mg/kg-day	6.0E-05	mg/kg-day	4.1E-03
				Aroclor-1254	2E-01	mg/kg	1.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.3E-09	1.2E-07	mg/kg-day	6.0E-05	mg/kg-day	1.9E-03
				Aroclor-1260	2E-01	mg/kg	2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	4.8E-09	1.7E-07	mg/kg-day	6.0E-05	mg/kg-day	2.8E-03
				Dieldrin	2E-01	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-08	8.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	5E-05	mg/kg	9.3E-14	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	1.2E-08	6.5E-12	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	4.0E-08	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.3E-03
				Cadmium (other media)	9E+00	mg/kg	6.2E-10	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-07					3E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	5E+00	mg/kg	6.4E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	7.0E-13	4.5E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	6.3E-09	ug/m3	1.1E-03	(ug/m3) $^{-1}$	6.9E-12	4.4E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	7.5E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	8.3E-13	5.3E-07	ug/m3	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.7E-09	ug/m3	N/A	N/A	N/A	2.6E-07	ug/m3	3.0E+00	ug/m3	8.7E-08
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	1.5E-13	9.3E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.0E-07	ug/m3	NA	N/A	N/A	3.5E-05	ug/m3	N/A	N/A	N/A
				Carbazole	5E-01	mg/kg	5.6E-10	ug/m3	N/A	N/A	N/A	3.9E-08	ug/m3	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	5.3E-09	ug/m3	1.1E-05	(ug/m3) $^{-1}$	5.8E-14	3.7E-07	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.8E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	1.1E-12	6.2E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.9E-10	ug/m3	N/A	N/A	N/A	2.0E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.7E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	4.1E-13	2.6E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.0E-08	ug/m3	N/A	N/A	N/A	7.1E-07	ug/m3	3.0E+00	ug/m3	2.4E-07
				Aroclor-1248	4E-01	mg/kg	4.3E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	2.5E-13	3.0E-08	ug/m3	N/A	N/A	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	1.2E-13	1.4E-08	ug/m3	N/A	N/A	N/A

TABLE 7.53.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	2E-01	mg/kg	3.0E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	1.7E-13	2.1E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	2E-01	mg/kg	2.1E-10	ug/m3	4.6E-03	(ug/m3) $^{-1}$	9.5E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	5E-05	mg/kg	5.4E-14	ug/m3	3.8E+01	(ug/m3) $^{-1}$	2.1E-12	3.8E-12	ug/m3	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.0E-05	ug/m3	N/A	N/A	N/A	7.3E-04	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	1.6E-08	ug/m3	4.3E-03	(ug/m3) $^{-1}$	6.7E-11	1.1E-06	ug/m3	1.5E-03	ug/m3	7.3E-04
				Cadmium (other media)	9E+00	mg/kg	1.1E-08	ug/m3	1.8E-03	(ug/m3) $^{-1}$	1.9E-11	7.5E-07	ug/m3	1.0E-02	ug/m3	7.5E-05
				Chromium	3E+02	mg/kg	3.4E-07	ug/m3	8.4E-02	(ug/m3) $^{-1}$	2.9E-08	2.4E-05	ug/m3	3.0E-01	ug/m3	8.0E-05
				Cobalt	8E+00	mg/kg	9.0E-09	ug/m3	9.0E-03	(ug/m3) $^{-1}$	8.1E-11	6.3E-07	ug/m3	2.0E-02	ug/m3	3.2E-05
				Copper	3E+02	mg/kg	3.1E-07	ug/m3	N/A	N/A	N/A	2.2E-05	ug/m3	N/A	N/A	N/A
				Iron	3E+04	mg/kg	3.4E-05	ug/m3	N/A	N/A	N/A	2.4E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.0E-06	ug/m3	N/A	N/A	N/A	7.1E-05	ug/m3	5.0E-02	ug/m3	1.4E-03
				Mercury (other media)	7E-01	mg/kg	8.2E-10	ug/m3	N/A	N/A	N/A	5.7E-08	ug/m3	3.0E-02	ug/m3	1.9E-06
				Thallium	2E+00	mg/kg	2.8E-09	ug/m3	N/A	N/A	N/A	1.9E-07	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	3.3E-08	ug/m3	N/A	N/A	N/A	2.3E-06	ug/m3	N/A	N/A	N/A
				Zinc	5E+02	mg/kg	6.4E-07	ug/m3	N/A	N/A	N/A	4.5E-05	ug/m3	N/A	N/A	N/A
			Exp. Route Total								3E-08					2E-03
		Exposure Point Total									3E-06					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.53.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.4E-08	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	6.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	4.4E-07	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.2E-08	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.6E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-01	mg/kg-day	8.3E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	9.2E-10	8.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	4.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.7E-08	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	5.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.1E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	5.0E-08	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	3.7E-10	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	6.2E-08	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-03	mg/kg-day	4.8E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.6E-08	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	9.7E-08	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	3.0E-01	mg/kg-day	2.3E-05
				Aroclor-1248	4E-01	mg/kg	4.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	4.1E-09	2.9E-07	mg/kg-day	6.0E-05	mg/kg-day	4.8E-03
				Aroclor-1254	2E-01	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-09	1.4E-07	mg/kg-day	6.0E-05	mg/kg-day	2.3E-03
				Aroclor-1260	2E-01	mg/kg	2.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.8E-09	2.0E-07	mg/kg-day	6.0E-05	mg/kg-day	3.3E-03
				Dieldrin	2E-01	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.2E-08	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	4E-05	mg/kg	4.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.5E-08	3.0E-11	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	1.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03
				Arsenic	1E+01	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.2E-07	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	3E+02	mg/kg	3.3E-06	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	9.0E-03	mg/kg-day	2.6E-02
				Cobalt	8E+00	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.0E-03
				Copper	3E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.1E-03
				Iron	3E+04	mg/kg	3.3E-04	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	9.6E-06	mg/kg-day	N/A	N/A	N/A	6.7E-04	mg/kg-day	7.0E-02	mg/kg-day	9.6E-03
				Mercury (other media)	7E-01	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-04	mg/kg-day	2.3E-03
				Vanadium	3E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	6.1E-06	mg/kg-day	N/A	N/A	N/A	4.3E-04	mg/kg-day	3.0E-01	mg/kg-day	1.4E-03
			Exp. Route Total								1E-06					2E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.7E-08	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.7E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.0E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-01	mg/kg-day	3.3E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-09	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.6E-10	3.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.0E-08	1.0E-04	mg/kg-day	2.0E-02	mg/kg-day	5.1E-03
				Carbazole	5E-01	mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.2E-11	1.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.53.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.4E-10	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.4E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	8.3E-10	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.0E-08	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-01	mg/kg-day	8.8E-06
				Aroclor-1248	4E-01	mg/kg	1.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-09	1.2E-07	mg/kg-day	6.0E-05	mg/kg-day	2.0E-03
				Aroclor-1254	2E-01	mg/kg	8.3E-10	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	8.3E-10	5.8E-08	mg/kg-day	6.0E-05	mg/kg-day	9.6E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-09	8.3E-08	mg/kg-day	6.0E-05	mg/kg-day	1.4E-03
				Dieldrin	2E-01	mg/kg	5.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	9.5E-09	4.2E-08	mg/kg-day	5.0E-05	mg/kg-day	8.3E-04
				Dioxin TEQ	4E-05	mg/kg	3.8E-14	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.0E-09	2.7E-12	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.0E-08	9.4E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	9E+00	mg/kg	3.1E-10	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.6E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	5E+00	mg/kg	3.2E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	3.5E-13	2.2E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.1E-09	ug/m3	1.1E-03	(ug/m3) $^{-1}$	3.4E-12	2.2E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.7E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	4.1E-13	2.6E-07	ug/m3	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.9E-09	ug/m3	N/A	N/A	N/A	1.3E-07	ug/m3	3.0E+00	ug/m3	4.3E-08
				Benzo(k)fluoranthene	1E+00	mg/kg	6.6E-10	ug/m3	1.1E-04	(ug/m3) $^{-1}$	7.2E-14	4.6E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.5E-07	ug/m3	NA	N/A	N/A	1.8E-05	ug/m3	N/A	N/A	N/A
				Carbazole	5E-01	mg/kg	2.8E-10	ug/m3	N/A	N/A	N/A	2.0E-08	ug/m3	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.6E-09	ug/m3	1.1E-05	(ug/m3) $^{-1}$	2.9E-14	1.8E-07	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.4E-10	ug/m3	1.2E-03	(ug/m3) $^{-1}$	5.3E-13	3.1E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-10	ug/m3	N/A	N/A	N/A	1.0E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.8E-09	ug/m3	1.1E-04	(ug/m3) $^{-1}$	2.0E-13	1.3E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.0E-09	ug/m3	N/A	N/A	N/A	3.5E-07	ug/m3	3.0E+00	ug/m3	1.2E-07
				Aroclor-1248	4E-01	mg/kg	2.1E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	1.2E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Aroclor-1254	2E-01	mg/kg	1.0E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	5.8E-14	7.2E-09	ug/m3	N/A	N/A	N/A

TABLE 7.53.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	2E-01	mg/kg	1.5E-10	ug/m3	5.7E-04	(ug/m3) $^{-1}$	8.4E-14	1.0E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	2E-01	mg/kg	1.0E-10	ug/m3	4.6E-03	(ug/m3) $^{-1}$	4.7E-13	7.2E-09	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	4E-05	mg/kg	2.2E-14	ug/m3	3.8E+01	(ug/m3) $^{-1}$	8.4E-13	1.5E-12	ug/m3	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	5.2E-06	ug/m3	N/A	N/A	N/A	3.6E-04	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	7.7E-09	ug/m3	4.3E-03	(ug/m3) $^{-1}$	3.3E-11	5.4E-07	ug/m3	1.5E-03	ug/m3	3.6E-04
				Cadmium (other media)	9E+00	mg/kg	5.3E-09	ug/m3	1.8E-03	(ug/m3) $^{-1}$	9.6E-12	3.7E-07	ug/m3	1.0E-02	ug/m3	3.7E-05
				Chromium	3E+02	mg/kg	1.7E-07	ug/m3	8.4E-02	(ug/m3) $^{-1}$	1.4E-08	1.2E-05	ug/m3	3.0E-01	ug/m3	4.0E-05
				Cobalt	8E+00	mg/kg	4.5E-09	ug/m3	9.0E-03	(ug/m3) $^{-1}$	4.0E-11	3.1E-07	ug/m3	2.0E-02	ug/m3	1.6E-05
				Copper	3E+02	mg/kg	1.5E-07	ug/m3	N/A	N/A	N/A	1.1E-05	ug/m3	N/A	N/A	N/A
				Iron	3E+04	mg/kg	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.0E-07	ug/m3	N/A	N/A	N/A	3.5E-05	ug/m3	5.0E-02	ug/m3	7.0E-04
				Mercury (other media)	7E-01	mg/kg	4.1E-10	ug/m3	N/A	N/A	N/A	2.8E-08	ug/m3	3.0E-02	ug/m3	9.5E-07
				Thallium	2E+00	mg/kg	1.4E-09	ug/m3	N/A	N/A	N/A	9.6E-08	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	1.6E-08	ug/m3	N/A	N/A	N/A	1.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	5E+02	mg/kg	3.2E-07	ug/m3	N/A	N/A	N/A	2.2E-05	ug/m3	N/A	N/A	N/A
			Exp. Route Total								1E-08					1E-03
		Exposure Point Total									1E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.54.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Outdoor (Trench) Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	4E-02	ug/m^3	6.1E-05	ug/m3	N/A	N/A	N/A	4.3E-03	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	3E-01	ug/m^3	4.9E-04	ug/m3	N/A	N/A	N/A	3.4E-02	ug/m3	3.0E+00	ug/m3	1.1E-02
				Acenaphthene	8E-02	ug/m^3	1.2E-04	ug/m3	N/A	N/A	N/A	8.7E-03	ug/m3	3.0E+00	ug/m3	2.9E-03
				Acetophenone	8E-02	ug/m^3	1.4E-04	ug/m3	N/A	N/A	N/A	9.6E-03	ug/m3	N/A	N/A	N/A
				Benzaldehyde	4E-01	ug/m^3	6.3E-04	ug/m3	N/A	N/A	N/A	4.4E-02	ug/m3	N/A	N/A	N/A
				Naphthalene	7E-01	ug/m^3	1.1E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	3.9E-08	8.0E-02	ug/m3	3.0E+00	ug/m3	2.7E-02
				1,4-Dichlorobenzene	3E-01	ug/m^3	4.9E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	5.4E-09	3.4E-02	ug/m3	2.4E+03	ug/m3	1.4E-05
				Benzene	2E+02	ug/m^3	2.4E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	1.9E-06	1.7E+01	ug/m3	9.0E+01	ug/m3	1.9E-01
				Carbon disulfide	2E+02	ug/m^3	2.7E-01	ug/m3	N/A	N/A	N/A	1.9E+01	ug/m3	7.0E+02	ug/m3	2.7E-02
				Ethylbenzene	6E+00	ug/m^3	9.1E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	2.3E-08	6.3E-01	ug/m3	1.0E+03	ug/m3	6.3E-04
				Methyl acetate	5E+01	ug/m^3	8.2E-02	ug/m3	N/A	N/A	N/A	5.7E+00	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	3.1E-02	ug/m3	5.9E-06	(ug/m3)$^{-1}$	1.8E-07	2.2E+00	ug/m3	2.7E+02	ug/m3	8.0E-03
				Toluene	2E+03	ug/m^3	3.6E+00	ug/m3	N/A	N/A	N/A	2.5E+02	ug/m3	5.0E+03	ug/m3	5.1E-02
				Xylene (Total)	7E+01	ug/m^3	1.1E-01	ug/m3	N/A	N/A	N/A	7.8E+00	ug/m3	3.0E+02	ug/m3	2.6E-02
			Exp. Route Total								2E-06					3E-01
		Exposure Point Total									2E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Outdoor (Trench) Air	Nunes Parcel	Inhalation													
				Benzene	3E-01	ug/m^3	4.1E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.2E-09	2.9E-02	ug/m3	9.0E+01	ug/m3	3.2E-04
			Exp. Route Total								3E-09					3E-04
		Exposure Point Total									3E-09					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.54.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Outdoor (Trench) Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	4E-02	ug/m^3	3.0E-05	ug/m3	N/A	N/A	N/A	2.1E-03	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	3E-01	ug/m^3	2.4E-04	ug/m3	N/A	N/A	N/A	1.7E-02	ug/m3	3.0E+00	ug/m3	5.7E-03
				Acenaphthene	8E-02	ug/m^3	6.2E-05	ug/m3	N/A	N/A	N/A	4.3E-03	ug/m3	3.0E+00	ug/m3	1.4E-03
				Acetophenone	8E-02	ug/m^3	6.8E-05	ug/m3	N/A	N/A	N/A	4.8E-03	ug/m3	N/A	N/A	N/A
				Benzaldehyde	4E-01	ug/m^3	3.1E-04	ug/m3	N/A	N/A	N/A	2.2E-02	ug/m3	N/A	N/A	N/A
				Naphthalene	7E-01	ug/m^3	5.7E-04	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.9E-08	4.0E-02	ug/m3	3.0E+00	ug/m3	1.3E-02
				1,4-Dichlorobenzene	3E-01	ug/m^3	2.4E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	2.7E-09	1.7E-02	ug/m3	2.4E+03	ug/m3	7.1E-06
				Benzene	2E+02	ug/m^3	1.2E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	9.5E-07	8.5E+00	ug/m3	9.0E+01	ug/m3	9.4E-02
				Carbon disulfide	2E+02	ug/m^3	1.3E-01	ug/m3	N/A	N/A	N/A	9.3E+00	ug/m3	7.0E+02	ug/m3	1.3E-02
				Ethylbenzene	6E+00	ug/m^3	4.5E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.1E-08	3.1E-01	ug/m3	1.0E+03	ug/m3	3.1E-04
				Methyl acetate	5E+01	ug/m^3	4.1E-02	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	1.5E-02	ug/m3	5.9E-06	(ug/m3)$^{-1}$	9.1E-08	1.1E+00	ug/m3	2.7E+02	ug/m3	4.0E-03
				Toluene	2E+03	ug/m^3	1.8E+00	ug/m3	N/A	N/A	N/A	1.3E+02	ug/m3	5.0E+03	ug/m3	2.5E-02
				Xylene (Total)	7E+01	ug/m^3	5.5E-02	ug/m3	N/A	N/A	N/A	3.8E+00	ug/m3	3.0E+02	ug/m3	1.3E-02
			Exp. Route Total								1E-06					2E-01
		Exposure Point Total									1E-06					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Outdoor (Trench) Air	Nunes Parcel	Inhalation													
				Benzene	3E-01	ug/m^3	2.0E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	1.6E-09	1.4E-02	ug/m3	9.0E+01	ug/m3	1.6E-04
			Exp. Route Total								2E-09					2E-04
		Exposure Point Total									2E-09					2E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.55.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	4E-03	ug/m^3	1.7E-05	ug/m3	1.6E-06	(ug/m3)$^{-1}$	2.7E-11	5.0E-05	ug/m3	5.0E+02	ug/m3	1.0E-07
				1,2,4-Trimethylbenzene	5E-02	ug/m^3	2.2E-04	ug/m3	N/A	N/A	N/A	6.4E-04	ug/m3	7.0E+00	ug/m3	9.2E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	7E-02	ug/m^3	2.9E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	5E-02	ug/m^3	2.1E-04	ug/m3	N/A	N/A	N/A	6.2E-04	ug/m3	2.0E+02	ug/m3	3.1E-06
				1,3,5-Trimethylbenzene	1E-02	ug/m^3	4.0E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+00	ug/m3	2.0E-05
				1,3-Dichlorobenzene	1E-01	ug/m^3	4.3E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	3E-01	ug/m^3	1.2E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.3E-08	3.4E-03	ug/m3	8.0E+02	ug/m3	4.3E-06
				4-Ethyltoluene	5E-02	ug/m^3	2.0E-04	ug/m3	N/A	N/A	N/A	5.8E-04	ug/m3	N/A	N/A	N/A
				Benzene	7E-01	ug/m^3	2.9E-03	ug/m3	7.8E-06	(ug/m3)$^{-1}$	2.3E-08	8.5E-03	ug/m3	3.0E+01	ug/m3	2.8E-04
				Carbon tetrachloride	2E-03	ug/m^3	8.5E-06	ug/m3	1.5E-05	(ug/m3)$^{-1}$	1.3E-10	2.5E-05	ug/m3	1.9E+02	ug/m3	1.3E-07
				Chlorobenzene	2E+00	ug/m^3	6.7E-03	ug/m3	N/A	N/A	N/A	2.0E-02	ug/m3	5.0E+01	ug/m3	3.9E-04
				cis-1,2-Dichloroethene	9E-03	ug/m^3	3.6E-05	ug/m3	N/A	N/A	N/A	1.0E-04	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	2E-02	ug/m^3	7.2E-05	ug/m3	N/A	N/A	N/A	2.1E-04	ug/m3	2.0E+02	ug/m3	1.0E-06
				Ethylbenzene	6E-01	ug/m^3	2.2E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	5.6E-09	6.6E-03	ug/m3	1.0E+03	ug/m3	6.6E-06
				Methylene chloride	4E-03	ug/m^3	1.7E-05	ug/m3	4.7E-07	(ug/m3)$^{-1}$	7.9E-12	4.9E-05	ug/m3	1.1E+03	ug/m3	4.5E-08
				trans-1,2-Dichloroethene	1E-02	ug/m^3	4.0E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+01	ug/m3	2.0E-06
				Trichloroethene	2E-02	ug/m^3	9.4E-05	ug/m3	2.0E-06	(ug/m3)$^{-1}$	1.9E-10	2.8E-04	ug/m3	1.0E+01	ug/m3	2.8E-05
				Vinyl Chloride	9E-02	ug/m^3	3.6E-04	ug/m3	4.4E-06	(ug/m3)$^{-1}$	1.6E-09	1.0E-03	ug/m3	1.0E+02	ug/m3	1.0E-05
				Xylene (Total)	3E-01	ug/m^3	1.3E-03	ug/m3	N/A	N/A	N/A	3.7E-03	ug/m3	1.0E+02	ug/m3	3.7E-05
			Exp. Route Total								4E-08					9E-04
		Exposure Point Total									4E-08					9E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.55.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	3E-03	ug/m^3	4.9E-06	ug/m3	1.6E-06	(ug/m3)$^{-1}$	7.9E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08
				1,2,4-Trimethylbenzene	4E-02	ug/m^3	6.4E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	5E-02	ug/m^3	8.5E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	4E-02	ug/m^3	6.2E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06
				1,3,5-Trimethylbenzene	7E-03	ug/m^3	1.2E-05	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06
				1,3-Dichlorobenzene	7E-02	ug/m^3	1.2E-04	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	2E-01	ug/m^3	3.4E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	3.8E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06
				4-Ethyltoluene	3E-02	ug/m^3	5.8E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A
				Benzene	5E-01	ug/m^3	8.5E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	6.7E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05
				Carbon tetrachloride	1E-03	ug/m^3	2.5E-06	ug/m3	1.5E-05	(ug/m3)$^{-1}$	3.7E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08
				Chlorobenzene	1E+00	ug/m^3	2.0E-03	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04
				cis-1,2-Dichloroethene	6E-03	ug/m^3	1.0E-05	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	1E-02	ug/m^3	2.1E-05	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07
				Ethylbenzene	4E-01	ug/m^3	6.6E-04	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.6E-09	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06
				Methylene chloride	3E-03	ug/m^3	4.9E-06	ug/m3	4.7E-07	(ug/m3)$^{-1}$	2.3E-12	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08
				trans-1,2-Dichloroethene	7E-03	ug/m^3	1.2E-05	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07
				Trichloroethene	2E-02	ug/m^3	2.8E-05	ug/m3	2.0E-06	(ug/m3)$^{-1}$	5.5E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06
				Vinyl Chloride	6E-02	ug/m^3	1.0E-04	ug/m3	4.4E-06	(ug/m3)$^{-1}$	4.6E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06
				Xylene (Total)	2E-01	ug/m^3	3.7E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05
			Exp. Route Total								1E-08					3E-04
		Exposure Point Total									1E-08					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.56.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	4E-03	ug/m^3	2.6E-06	ug/m3	1.6E-06	(ug/m3)$^{-1}$	4.2E-12	3.1E-05	ug/m3	5.0E+02	ug/m3	6.1E-08
				1,2,4-Trimethylbenzene	5E-02	ug/m^3	3.4E-05	ug/m3	N/A	N/A	N/A	4.0E-04	ug/m3	7.0E+00	ug/m3	5.7E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	7E-02	ug/m^3	4.5E-05	ug/m3	N/A	N/A	N/A	5.2E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	5E-02	ug/m^3	3.3E-05	ug/m3	N/A	N/A	N/A	3.8E-04	ug/m3	2.0E+02	ug/m3	1.9E-06
				1,3,5-Trimethylbenzene	1E-02	ug/m^3	6.2E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	6.0E+00	ug/m3	1.2E-05
				1,3-Dichlorobenzene	1E-01	ug/m^3	6.6E-05	ug/m3	N/A	N/A	N/A	7.7E-04	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	3E-01	ug/m^3	1.8E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	2.0E-09	2.1E-03	ug/m3	8.0E+02	ug/m3	2.6E-06
				4-Ethyltoluene	5E-02	ug/m^3	3.0E-05	ug/m3	N/A	N/A	N/A	3.6E-04	ug/m3	N/A	N/A	N/A
				Benzene	7E-01	ug/m^3	4.5E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.5E-09	5.2E-03	ug/m3	3.0E+01	ug/m3	1.7E-04
				Carbon tetrachloride	2E-03	ug/m^3	1.3E-06	ug/m3	1.5E-05	(ug/m3)$^{-1}$	2.0E-11	1.5E-05	ug/m3	1.9E+02	ug/m3	8.1E-08
				Chlorobenzene	2E+00	ug/m^3	1.0E-03	ug/m3	N/A	N/A	N/A	1.2E-02	ug/m3	5.0E+01	ug/m3	2.4E-04
				cis-1,2-Dichloroethene	9E-03	ug/m^3	5.5E-06	ug/m3	N/A	N/A	N/A	6.5E-05	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	2E-02	ug/m^3	1.1E-05	ug/m3	N/A	N/A	N/A	1.3E-04	ug/m3	2.0E+02	ug/m3	6.5E-07
				Ethylbenzene	6E-01	ug/m^3	3.5E-04	ug/m3	2.5E-06	(ug/m3)$^{-1}$	8.7E-10	4.0E-03	ug/m3	1.0E+03	ug/m3	4.0E-06
				Methylene chloride	4E-03	ug/m^3	2.6E-06	ug/m3	4.7E-07	(ug/m3)$^{-1}$	1.2E-12	3.0E-05	ug/m3	1.1E+03	ug/m3	2.8E-08
				trans-1,2-Dichloroethene	1E-02	ug/m^3	6.2E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	6.0E+01	ug/m3	1.2E-06
				Trichloroethene	2E-02	ug/m^3	1.5E-05	ug/m3	2.0E-06	(ug/m3)$^{-1}$	2.9E-11	1.7E-04	ug/m3	1.0E+01	ug/m3	1.7E-05
				Vinyl Chloride	9E-02	ug/m^3	5.5E-05	ug/m3	4.4E-06	(ug/m3)$^{-1}$	2.4E-10	6.5E-04	ug/m3	1.0E+02	ug/m3	6.5E-06
				Xylene (Total)	3E-01	ug/m^3	1.9E-04	ug/m3	N/A	N/A	N/A	2.3E-03	ug/m3	1.0E+02	ug/m3	2.3E-05
			Exp. Route Total								7E-09					5E-04
		Exposure Point Total									7E-09					5E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.56.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil/Groundwater	Ambient Air	Landfill	Inhalation													
				1,1-Dichloroethane	3E-03	ug/m^3	1.5E-06	ug/m3	1.6E-06	(ug/m3)$^{-1}$	2.4E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08
				1,2,4-Trimethylbenzene	4E-02	ug/m^3	1.9E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (F	5E-02	ug/m^3	2.6E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A
				1,2-Dichlorobenzene	4E-02	ug/m^3	1.9E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06
				1,3,5-Trimethylbenzene	7E-03	ug/m^3	3.5E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06
				1,3-Dichlorobenzene	7E-02	ug/m^3	3.7E-05	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	2E-01	ug/m^3	1.0E-04	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.1E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06
				4-Ethyltoluene	3E-02	ug/m^3	1.7E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A
				Benzene	5E-01	ug/m^3	2.6E-04	ug/m3	7.8E-06	(ug/m3)$^{-1}$	2.0E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05
				Carbon tetrachloride	1E-03	ug/m^3	7.5E-07	ug/m3	1.5E-05	(ug/m3)$^{-1}$	1.1E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08
				Chlorobenzene	1E+00	ug/m^3	5.9E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04
				cis-1,2-Dichloroethene	6E-03	ug/m^3	3.1E-06	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A
				Dichlorodifluoromethane	1E-02	ug/m^3	6.3E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07
				Ethylbenzene	4E-01	ug/m^3	2.0E-04	ug/m3	2.5E-06	(ug/m3)$^{-1}$	4.9E-10	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06
				Methylene chloride	3E-03	ug/m^3	1.5E-06	ug/m3	4.7E-07	(ug/m3)$^{-1}$	6.9E-13	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08
				trans-1,2-Dichloroethene	7E-03	ug/m^3	3.5E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07
				Trichloroethene	2E-02	ug/m^3	8.3E-06	ug/m3	2.0E-06	(ug/m3)$^{-1}$	1.7E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06
				Vinyl Chloride	6E-02	ug/m^3	3.1E-05	ug/m3	4.4E-06	(ug/m3)$^{-1}$	1.4E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06
				Xylene (Total)	2E-01	ug/m^3	1.1E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05
			Exp. Route Total								4E-09					3E-04
		Exposure Point Total									4E-09					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.57.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	6.0E-02	mg/kg-day	5.6E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	5.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	7.6E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	7.9E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-03	mg/kg-day	2.6E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	3.5E-07	mg/kg-day	4.9E-03	(mg/kg-day) $^{-1}$	1.7E-09	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	5.5E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	3.0E-09	1.6E-06	mg/kg-day	7.0E-02	mg/kg-day	2.3E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Ethylbenzene	1E+00	ug/L	3.0E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	3.3E-09	8.7E-07	mg/kg-day	1.0E-01	mg/kg-day	8.7E-06
				Xylene (total)	3E+00	ug/L	8.6E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	2.0E-01	mg/kg-day	1.2E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	8.0E-10	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	5.0E-09	2.3E-09	mg/kg-day	8.0E-03	mg/kg-day	2.9E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	3.1E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-02	mg/kg-day	9.1E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	7.5E-05	mg/kg-day	5.2E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.57.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-08					1E-03
		Exposure Point Total									2E-08					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.57.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	6.0E-02	mg/kg-day	2.8E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	2.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.1E-09	7.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	2.8E-08	mg/kg-day	N/A	N/A	N/A	9.8E-08	mg/kg-day	2.0E-02	mg/kg-day	4.9E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	1.5E-07	mg/kg-day	4.9E-03	(mg/kg-day) $^{-1}$	7.2E-10	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	2.3E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	1.2E-09	8.1E-07	mg/kg-day	7.0E-02	mg/kg-day	1.2E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	3.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.6E-04
				Ethylbenzene	1E+00	ug/L	1.2E-07	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	1.4E-09	4.3E-07	mg/kg-day	1.0E-01	mg/kg-day	4.3E-06
				Xylene (total)	3E+00	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	2.0E-01	mg/kg-day	6.2E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	3.3E-10	mg/kg-day	6.3E+00	(mg/kg-day) $^{-1}$	2.1E-09	1.2E-09	mg/kg-day	8.0E-03	mg/kg-day	1.5E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	1.0E-02	mg/kg-day	4.5E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	5.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	7.5E-05	mg/kg-day	2.6E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.57.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-09					7E-04
		Exposure Point Total									9E-09					7E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.58.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.0E-08	mg/kg-day	6.0E-02	mg/kg-day	6.7E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.3E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.4E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.2E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	1.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	9.0E-10	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.8E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	8.9E-08	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	9.8E-10	1.0E-06	mg/kg-day	1.0E-01	mg/kg-day	1.0E-05
				Xylene (total)	3E+00	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	2.0E-01	mg/kg-day	1.5E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-02	mg/kg-day	1.1E-04
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	7.5E-05	mg/kg-day	6.2E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.58.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-09					1E-03
		Exposure Point Total									4E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.58.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal													
				4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	1.7E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	6.0E-02	mg/kg-day	3.4E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	8.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-09	9.4E-07	mg/kg-day	2.0E-02	mg/kg-day	4.7E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	5.4E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-03	mg/kg-day	1.6E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	8.3E-08	mg/kg-day	5.4E-03	(mg/kg-day) $^{-1}$	4.5E-10	9.7E-07	mg/kg-day	7.0E-02	mg/kg-day	1.4E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	4.5E-08	mg/kg-day	1.1E-02	(mg/kg-day) $^{-1}$	4.9E-10	5.2E-07	mg/kg-day	1.0E-01	mg/kg-day	5.2E-06
				Xylene (total)	3E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	2.0E-01	mg/kg-day	7.5E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	1.0E-02	mg/kg-day	5.4E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) $^{-1}$	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	7.5E-05	mg/kg-day	3.1E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.58.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-09					6E-04
		Exposure Point Total									2E-09					6E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.59.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	5.1E-03	ug/m3	N/A	N/A	N/A	1.4E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	3.8E-02	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	3.0E+00	ug/m3	3.6E-02
				Acenaphthene	1E-01	ug/m^3	1.0E-02	ug/m3	N/A	N/A	N/A	2.8E-02	ug/m3	3.0E+00	ug/m3	9.4E-03
				Acetophenone	1E-01	ug/m^3	9.0E-03	ug/m3	N/A	N/A	N/A	2.5E-02	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	3.8E-02	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	8.2E-02	ug/m3	3.4E-05	(ug/m3)$^{-1}$	2.8E-06	2.3E-01	ug/m3	3.0E+00	ug/m3	7.6E-02
				1,4-Dichlorobenzene	4E-01	ug/m^3	3.4E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	3.8E-07	9.6E-02	ug/m3	8.0E+02	ug/m3	1.2E-04
				Benzene	2E+02	ug/m^3	1.2E+01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	9.5E-05	3.4E+01	ug/m3	3.0E+01	ug/m3	1.1E+00
				Carbon disulfide	2E+02	ug/m^3	1.3E+01	ug/m3	N/A	N/A	N/A	3.6E+01	ug/m3	7.0E+02	ug/m3	5.1E-02
				Ethylbenzene	6E+00	ug/m^3	5.3E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.3E-06	1.5E+00	ug/m3	1.0E+03	ug/m3	1.5E-03
				Methyl acetate	5E+01	ug/m^3	3.9E+00	ug/m3	N/A	N/A	N/A	1.1E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	1.8E+00	ug/m3	5.9E-06	(ug/m3)$^{-1}$	1.1E-05	5.2E+00	ug/m3	2.7E+02	ug/m3	1.9E-02
				Toluene	2E+03	ug/m^3	1.9E+02	ug/m3	N/A	N/A	N/A	5.4E+02	ug/m3	5.0E+03	ug/m3	1.1E-01
				Xylene (Total)	8E+01	ug/m^3	6.3E+00	ug/m3	N/A	N/A	N/A	1.8E+01	ug/m3	1.0E+02	ug/m3	1.8E-01
			Exp. Route Total								1E-04					2E+00
		Exposure Point Total									1E-04					2E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	5.6E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.9E-07	1.6E-02	ug/m3	3.0E+00	ug/m3	5.2E-03
				1,4-Dichlorobenzene	6E-02	ug/m^3	4.8E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	5.3E-08	1.3E-02	ug/m3	8.0E+02	ug/m3	1.7E-05
				Benzene	2E+00	ug/m^3	1.2E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	9.5E-07	3.4E-01	ug/m3	3.0E+01	ug/m3	1.1E-02
				Chloroform	1E-01	ug/m^3	9.8E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	2.3E-07	2.7E-02	ug/m3	1.0E+02	ug/m3	2.7E-04
				Ethylbenzene	2E+00	ug/m^3	1.9E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	4.7E-07	5.2E-01	ug/m3	1.0E+03	ug/m3	5.2E-04
				Vinyl chloride	8E-01	ug/m^3	6.4E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	2.8E-07	1.8E-01	ug/m3	1.0E+02	ug/m3	1.8E-03
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.59.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	1.6E-03	ug/m3	N/A	N/A	N/A	1.2E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	1.2E-02	ug/m3	N/A	N/A	N/A	9.4E-02	ug/m3	3.0E+00	ug/m3	3.1E-02
				Acenaphthene	1E-01	ug/m^3	3.2E-03	ug/m3	N/A	N/A	N/A	2.5E-02	ug/m3	3.0E+00	ug/m3	8.3E-03
				Acetophenone	1E-01	ug/m^3	2.8E-03	ug/m3	N/A	N/A	N/A	2.2E-02	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	1.2E-02	ug/m3	N/A	N/A	N/A	9.2E-02	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	2.6E-02	ug/m3	3.4E-05	(ug/m3)$^{-1}$	8.7E-07	2.0E-01	ug/m3	3.0E+00	ug/m3	6.7E-02
				1,4-Dichlorobenzene	4E-01	ug/m^3	1.1E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.2E-07	8.4E-02	ug/m3	8.0E+02	ug/m3	1.1E-04
				Benzene	2E+02	ug/m^3	3.9E+00	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.0E-05	3.0E+01	ug/m3	3.0E+01	ug/m3	1.0E+00
				Carbon disulfide	2E+02	ug/m^3	4.0E+00	ug/m3	N/A	N/A	N/A	3.1E+01	ug/m3	7.0E+02	ug/m3	4.5E-02
				Ethylbenzene	6E+00	ug/m^3	1.7E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	4.2E-07	1.3E+00	ug/m3	1.0E+03	ug/m3	1.3E-03
				Methyl acetate	5E+01	ug/m^3	1.2E+00	ug/m3	N/A	N/A	N/A	9.5E+00	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	5.8E-01	ug/m3	5.9E-06	(ug/m3)$^{-1}$	3.4E-06	4.5E+00	ug/m3	2.7E+02	ug/m3	1.7E-02
				Toluene	2E+03	ug/m^3	6.0E+01	ug/m3	N/A	N/A	N/A	4.7E+02	ug/m3	5.0E+03	ug/m3	9.4E-02
				Xylene (Total)	8E+01	ug/m^3	2.0E+00	ug/m3	N/A	N/A	N/A	1.6E+01	ug/m3	1.0E+02	ug/m3	1.6E-01
			Exp. Route Total								3E-05					1E+00
		Exposure Point Total									3E-05					1E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	1.8E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	6.0E-08	1.4E-02	ug/m3	3.0E+00	ug/m3	4.5E-03
				1,4-Dichlorobenzene	6E-02	ug/m^3	1.5E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	1.7E-08	1.2E-02	ug/m3	8.0E+02	ug/m3	1.5E-05
				Benzene	2E+00	ug/m^3	3.9E-02	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.0E-07	3.0E-01	ug/m3	3.0E+01	ug/m3	1.0E-02
				Chloroform	1E-01	ug/m^3	3.1E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	7.1E-08	2.4E-02	ug/m3	1.0E+02	ug/m3	2.4E-04
				Ethylbenzene	2E-01	ug/m^3	4.1E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.0E-08	3.2E-02	ug/m3	1.0E+03	ug/m3	3.2E-05
				Vinyl chloride	8E-01	ug/m^3	2.0E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	8.8E-08	1.6E-01	ug/m3	1.0E+02	ug/m3	1.6E-03
			Exp. Route Total								5E-07					2E-02
		Exposure Point Total									5E-07					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.60.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.8E-06	7.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.4E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.8E-05	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.2E-06	8.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	3.0E-02	mg/kg-day	1.4E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	3.8E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.0E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	2.8E-06	5.8E-04	mg/kg-day	2.0E-02	mg/kg-day	2.9E-02
				Carbazole	5E-01	mg/kg	2.2E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	4.4E-09	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.5E-08	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	3.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.5E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	4.0E-03	mg/kg-day	8.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-06	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-02	mg/kg-day	3.9E-04
				Aroclor-1248	4E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.4E-07	4.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Aroclor-1254	2E-01	mg/kg	8.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	2E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.3E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	2E-01	mg/kg	8.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.3E-06	2.4E-07	mg/kg-day	5.0E-05	mg/kg-day	4.7E-03
				Dioxin TEQ	5E-05	mg/kg	2.1E-11	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.7E-06	6.2E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.1E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	1.2E-02
				Arsenic	1E+01	mg/kg	6.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	9.2E-06	1.8E-05	mg/kg-day	3.0E-04	mg/kg-day	5.9E-02
				Cadmium (other media)	9E+00	mg/kg	4.2E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	1.0E-03	mg/kg-day	1.2E-02
				Chromium	3E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	3.0E-03	mg/kg-day	1.3E-01
				Cobalt	8E+00	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	3.4E-02
				Copper	3E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	4.0E-02	mg/kg-day	8.8E-03
				Iron	3E+04	mg/kg	1.3E-02	mg/kg-day	N/A	N/A	N/A	3.9E-02	mg/kg-day	7.0E-01	mg/kg-day	5.6E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.2E-03	mg/kg-day	7.0E-02	mg/kg-day	1.6E-02
				Mercury (other media)	7E-01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	1.0E-04	mg/kg-day	9.3E-03
				Thallium	2E+00	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	8.0E-05	mg/kg-day	4.0E-02
				Vanadium	3E+01	mg/kg	1.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	7.0E-03	mg/kg-day	5.4E-03
				Zinc	5E+02	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03
			Exp. Route Total								4E-05					5E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.5E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.3E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	9.3E-06	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-06	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.0E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.1E-06	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				Carbazole	5E-01	mg/kg	1.1E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	2.3E-09	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.60.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	7.8E-09	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.3E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	7.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	5.5E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-02	mg/kg-day	2.0E-04
				Aroclor-1248	4E-01	mg/kg	9.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.9E-07	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	9.0E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Aroclor-1260	2E-01	mg/kg	6.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.5E-03
				Dieldrin	2E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	5.2E-07	9.5E-08	mg/kg-day	5.0E-05	mg/kg-day	1.9E-03
				Dioxin TEQ	5E-05	mg/kg	2.5E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.3E-07	7.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	7.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-06	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	7.1E-03
				Cadmium (other media)	9E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-05					5E-02
		Exposure Point Total									6E-05					5E-01
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	2.1E-02	ug/m3	N/A	N/A	N/A	6.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	1.5E-01	ug/m3	N/A	N/A	N/A	4.5E-01	ug/m3	3.0E+00	ug/m3	1.5E-01
				Acenaphthene	1E-01	ug/m^3	4.1E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	3.0E+00	ug/m3	4.0E-02
				Acetophenone	1E-01	ug/m^3	3.6E-02	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	1.5E-01	ug/m3	N/A	N/A	N/A	4.4E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	3.3E-01	ug/m3	3.4E-05	(ug/m3) $^{-1}$	1.1E-05	9.6E-01	ug/m3	3.0E+00	ug/m3	3.2E-01
				1,4-Dichlorobenzene	4E-01	ug/m^3	1.4E-01	ug/m3	1.1E-05	(ug/m3) $^{-1}$	1.5E-06	4.0E-01	ug/m3	8.0E+02	ug/m3	5.0E-04
				Benzene	2E+02	ug/m^3	4.9E+01	ug/m3	7.8E-06	(ug/m3) $^{-1}$	3.8E-04	1.4E+02	ug/m3	3.0E+01	ug/m3	4.8E+00
				Carbon disulfide	2E+02	ug/m^3	5.1E+01	ug/m3	N/A	N/A	N/A	1.5E+02	ug/m3	7.0E+02	ug/m3	2.1E-01
				Ethylbenzene	6E+00	ug/m^3	2.1E+00	ug/m3	2.5E-06	(ug/m3) $^{-1}$	5.3E-06	6.2E+00	ug/m3	1.0E+03	ug/m3	6.2E-03
				Methyl acetate	5E+01	ug/m^3	1.6E+01	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	7.4E+00	ug/m3	5.9E-06	(ug/m3) $^{-1}$	4.4E-05	2.2E+01	ug/m3	2.7E+02	ug/m3	8.0E-02
				Toluene	2E+03	ug/m^3	7.7E+02	ug/m3	N/A	N/A	N/A	2.3E+03	ug/m3	5.0E+03	ug/m3	4.5E-01

TABLE 7.60.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Xylene (Total)	8E+01	ug/m^3	2.6E+01	ug/m3	N/A	N/A	N/A	7.5E+01	ug/m3	1.0E+02	ug/m3	7.5E-01
			Exp. Route Total								4E-04					7E+00
		Exposure Point Total									4E-04					7E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	2.2E-02	ug/m3	3.4E-05	(ug/m3)$^{-1}$	7.6E-07	6.5E-02	ug/m3	3.0E+00	ug/m3	2.2E-02
				1,4-Dichlorobenzene	6E-02	ug/m^3	1.9E-02	ug/m3	1.1E-05	(ug/m3)$^{-1}$	2.1E-07	5.7E-02	ug/m3	8.0E+02	ug/m3	7.1E-05
				Benzene	2E+00	ug/m^3	4.9E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	3.8E-06	1.4E+00	ug/m3	3.0E+01	ug/m3	4.8E-02
				Chloroform	1E-01	ug/m^3	3.9E-02	ug/m3	2.3E-05	(ug/m3)$^{-1}$	9.1E-07	1.2E-01	ug/m3	1.0E+02	ug/m3	1.2E-03
				Ethylbenzene	2E+00	ug/m^3	7.5E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	1.9E-06	2.2E+00	ug/m3	1.0E+03	ug/m3	2.2E-03
				Vinyl chloride	8E-01	ug/m^3	2.6E-01	ug/m3	4.4E-06	(ug/m3)$^{-1}$	1.1E-06	7.5E-01	ug/m3	1.0E+02	ug/m3	7.5E-03
			Exp. Route Total								9E-06					8E-02
		Exposure Point Total									9E-06					8E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.60.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-07	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.6E-06	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.5E-09	7.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	4.0E-07	2.9E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Carbazole	5E-01	mg/kg	3.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.4E-10	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.2E-09	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.7E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.1E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	5.8E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.5E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.2E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.7E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.5E-03
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.9E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.4E-03
				Dioxin TEQ	4E-05	mg/kg	2.5E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	3.3E-07	2.5E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Arsenic	1E+01	mg/kg	8.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.3E-06	8.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.0E-02
				Cadmium (other media)	9E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	1.0E-03	mg/kg-day	6.1E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	3.0E-03	mg/kg-day	6.6E-02
				Cobalt	8E+00	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	4.0E-02	mg/kg-day	4.4E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	2.8E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	5.8E-04	mg/kg-day	7.0E-02	mg/kg-day	8.2E-03
				Mercury (other media)	7E-01	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	1.0E-04	mg/kg-day	4.7E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	8.0E-05	mg/kg-day	2.0E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-03	mg/kg-day	2.7E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
			Exp. Route Total								6E-06					2E-01
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.8E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.7E-06	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	3.3E-07	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	5.7E-09	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-07	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	6.7E-10	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.60.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	2.3E-09	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.8E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.6E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-02	mg/kg-day	2.0E-04
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.8E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.3E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.9E-08	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.5E-03
				Dieldrin	2E-01	mg/kg	9.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-07	9.5E-08	mg/kg-day	5.0E-05	mg/kg-day	1.9E-03
				Dioxin TEQ	4E-05	mg/kg	6.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	7.9E-08	6.1E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	3.2E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	7.1E-03
				Cadmium (other media)	9E+00	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-06					5E-02
		Exposure Point Total									1E-05					3E-01
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	4.0E-03	ug/m3	N/A	N/A	N/A	4.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	3.0E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	3.0E+00	ug/m3	1.0E-01
				Acenaphthene	1E-01	ug/m^3	7.9E-03	ug/m3	N/A	N/A	N/A	7.9E-02	ug/m3	3.0E+00	ug/m3	2.6E-02
				Acetophenone	1E-01	ug/m^3	7.0E-03	ug/m3	N/A	N/A	N/A	7.0E-02	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	3.0E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	6.4E-02	ug/m3	3.4E-05	(ug/m3) $^{-1}$	2.2E-06	6.4E-01	ug/m3	3.0E+00	ug/m3	2.1E-01
				1,4-Dichlorobenzene	4E-01	ug/m^3	2.7E-02	ug/m3	1.1E-05	(ug/m3) $^{-1}$	3.0E-07	2.7E-01	ug/m3	8.0E+02	ug/m3	3.4E-04
				Benzene	2E+02	ug/m^3	9.6E+00	ug/m3	7.8E-06	(ug/m3) $^{-1}$	7.5E-05	9.6E+01	ug/m3	3.0E+01	ug/m3	3.2E+00
				Carbon disulfide	2E+02	ug/m^3	1.0E+01	ug/m3	N/A	N/A	N/A	1.0E+02	ug/m3	7.0E+02	ug/m3	1.4E-01
				Ethylbenzene	6E+00	ug/m^3	4.1E-01	ug/m3	2.5E-06	(ug/m3) $^{-1}$	1.0E-06	4.1E+00	ug/m3	1.0E+03	ug/m3	4.1E-03
				Methyl acetate	5E+01	ug/m^3	3.0E+00	ug/m3	N/A	N/A	N/A	3.0E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	1.4E+00	ug/m3	5.9E-06	(ug/m3) $^{-1}$	8.5E-06	1.4E+01	ug/m3	2.7E+02	ug/m3	5.4E-02
				Toluene	2E+03	ug/m^3	1.5E+02	ug/m3	N/A	N/A	N/A	1.5E+03	ug/m3	5.0E+03	ug/m3	3.0E-01

TABLE 7.60.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Xylene (Total)	8E+01	ug/m^3	5.0E+00	ug/m3	N/A	N/A	N/A	5.0E+01	ug/m3	1.0E+02	ug/m3	5.0E-01
			Exp. Route Total								9E-05					5E+00
		Exposure Point Total									9E-05					5E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	4.4E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.5E-07	4.4E-02	ug/m3	3.0E+00	ug/m3	1.5E-02
				1,4-Dichlorobenzene	6E-02	ug/m^3	3.8E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	4.1E-08	3.8E-02	ug/m3	8.0E+02	ug/m3	4.7E-05
				Benzene	2E+00	ug/m^3	9.6E-02	ug/m3	7.8E-06	(ug/m3)$^{-1}$	7.5E-07	9.6E-01	ug/m3	3.0E+01	ug/m3	3.2E-02
				Chloroform	1E-01	ug/m^3	7.7E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	1.8E-07	7.7E-02	ug/m3	1.0E+02	ug/m3	7.7E-04
				Ethylbenzene	2E-01	ug/m^3	1.0E-02	ug/m3	2.5E-06	(ug/m3)$^{-1}$	2.5E-08	1.0E-01	ug/m3	1.0E+03	ug/m3	1.0E-04
				Vinyl chloride	8E-01	ug/m^3	5.0E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	2.2E-07	5.0E-01	ug/m3	1.0E+02	ug/m3	5.0E-03
			Exp. Route Total								1E-06					5E-02
		Exposure Point Total									1E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

TABLE 7.61.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	5.8E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.3E-05	6.8E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	5.7E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	2.2E-04	6.7E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	6.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	2.7E-05	8.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	4.7E-07	1.4E-05	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	4.6E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	6.5E-06	5.4E-03	mg/kg-day	2.0E-02	mg/kg-day	2.7E-01
				Carbazole	5E-01	mg/kg	5.2E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	1.0E-08	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	4.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	1.9E-07	5.6E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	3.1E-05	9.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	4.0E-03	mg/kg-day	7.7E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-05	4.0E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-02	mg/kg-day	3.6E-03
				Aroclor-1248	4E-01	mg/kg	3.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	7.9E-07	4.6E-06	mg/kg-day	2.0E-05	mg/kg-day	2.3E-01
				Aroclor-1254	2E-01	mg/kg	1.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.8E-07	2.2E-06	mg/kg-day	2.0E-05	mg/kg-day	1.1E-01
				Aroclor-1260	2E-01	mg/kg	2.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	5.4E-07	3.2E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Dieldrin	2E-01	mg/kg	1.9E-07	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	3.0E-06	2.2E-06	mg/kg-day	5.0E-05	mg/kg-day	4.4E-02
				Dioxin TEQ	5E-05	mg/kg	4.9E-11	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	6.4E-06	5.8E-10	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	9.6E-03	mg/kg-day	N/A	N/A	N/A	1.1E-01	mg/kg-day	1.0E+00	mg/kg-day	1.1E-01
				Arsenic	1E+01	mg/kg	1.4E-05	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	2.1E-05	1.7E-04	mg/kg-day	3.0E-04	mg/kg-day	5.5E-01
				Cadmium (other media)	9E+00	mg/kg	9.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	1.0E-03	mg/kg-day	1.1E-01
				Chromium	3E+02	mg/kg	3.1E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	3.0E-03	mg/kg-day	1.2E+00
				Cobalt	8E+00	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-04	mg/kg-day	3.2E-01
				Copper	3E+02	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	4.0E-02	mg/kg-day	8.2E-02
				Iron	3E+04	mg/kg	3.1E-02	mg/kg-day	N/A	N/A	N/A	3.7E-01	mg/kg-day	7.0E-01	mg/kg-day	5.2E-01
				Lead												
				Manganese (other media)	8E+02	mg/kg	9.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-02	mg/kg-day	1.5E-01
				Mercury (other media)	7E-01	mg/kg	7.5E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	1.0E-04	mg/kg-day	8.7E-02
				Thallium	2E+00	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	8.0E-05	mg/kg-day	3.7E-01
				Vanadium	3E+01	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	7.0E-03	mg/kg-day	5.0E-02
				Zinc	5E+02	mg/kg	5.9E-04	mg/kg-day	N/A	N/A	N/A	6.9E-03	mg/kg-day	3.0E-01	mg/kg-day	2.3E-02
			Exp. Route Total								4E-04					4E+00
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.3E-06	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.1E-05	2.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.7E-06	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-06	1.5E-03	mg/kg-day	2.0E-02	mg/kg-day	7.5E-02
				Carbazole	5E-01	mg/kg	1.9E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.2E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.61.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.8E-08	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-05	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-08	mg/kg-day	N/A	N/A	N/A	8.7E-07	mg/kg-day	4.0E-03	mg/kg-day	2.2E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.8E-06	1.4E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Aroclor-1248	4E-01	mg/kg	1.5E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	3.1E-07	1.8E-06	mg/kg-day	2.0E-05	mg/kg-day	9.0E-02
				Aroclor-1254	2E-01	mg/kg	7.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	8.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.3E-02
				Aroclor-1260	2E-01	mg/kg	1.1E-07	mg/kg-day	2.0E+00	(mg/kg-day) $^{-1}$	2.1E-07	1.2E-06	mg/kg-day	2.0E-05	mg/kg-day	6.2E-02
				Dieldrin	2E-01	mg/kg	5.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.5E-07	6.2E-07	mg/kg-day	5.0E-05	mg/kg-day	1.2E-02
				Dioxin TEQ	5E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.7E-02
				Cadmium (other media)	9E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	2.5E-05	mg/kg-day	1.3E-02
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-04					3E-01
		Exposure Point Total									5E-04					5E+00
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	5.1E-03	ug/m3	N/A	N/A	N/A	6.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	3.9E-02	ug/m3	N/A	N/A	N/A	4.5E-01	ug/m3	3.0E+00	ug/m3	1.5E-01
				Acenaphthene	1E-01	ug/m^3	1.0E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	3.0E+00	ug/m3	4.0E-02
				Acetophenone	1E-01	ug/m^3	9.0E-03	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	3.8E-02	ug/m3	N/A	N/A	N/A	4.4E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	8.2E-02	ug/m3	3.4E-05	(ug/m3) $^{-1}$	2.8E-06	9.6E-01	ug/m3	3.0E+00	ug/m3	3.2E-01
				1,4-Dichlorobenzene	4E-01	ug/m^3	3.5E-02	ug/m3	1.1E-05	(ug/m3) $^{-1}$	3.8E-07	4.0E-01	ug/m3	8.0E+02	ug/m3	5.0E-04
				Benzene	2E+02	ug/m^3	1.2E+01	ug/m3	7.8E-06	(ug/m3) $^{-1}$	9.6E-05	1.4E+02	ug/m3	3.0E+01	ug/m3	4.8E+00
				Carbon disulfide	2E+02	ug/m^3	1.3E+01	ug/m3	N/A	N/A	N/A	1.5E+02	ug/m3	7.0E+02	ug/m3	2.1E-01
				Ethylbenzene	6E+00	ug/m^3	5.3E-01	ug/m3	2.5E-06	(ug/m3) $^{-1}$	1.3E-06	6.2E+00	ug/m3	1.0E+03	ug/m3	6.2E-03
				Methyl acetate	5E+01	ug/m^3	3.9E+00	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	1.9E+00	ug/m3	5.9E-06	(ug/m3) $^{-1}$	1.1E-05	2.2E+01	ug/m3	2.7E+02	ug/m3	8.0E-02
				Toluene	2E+03	ug/m^3	1.9E+02	ug/m3	N/A	N/A	N/A	2.3E+03	ug/m3	5.0E+03	ug/m3	4.5E-01

TABLE 7.61.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Xylene (Total)	8E+01	ug/m^3	6.4E+00	ug/m3	N/A	N/A	N/A	7.5E+01	ug/m3	1.0E+02	ug/m3	7.5E-01
			Exp. Route Total								1E-04					7E+00
		Exposure Point Total									1E-04					7E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	5.6E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.9E-07	6.5E-02	ug/m3	3.0E+00	ug/m3	2.2E-02
				1,4-Dichlorobenzene	6E-02	ug/m^3	4.8E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	5.3E-08	5.7E-02	ug/m3	8.0E+02	ug/m3	7.1E-05
				Benzene	2E+00	ug/m^3	1.2E-01	ug/m3	7.8E-06	(ug/m3)$^{-1}$	9.6E-07	1.4E+00	ug/m3	3.0E+01	ug/m3	4.8E-02
				Chloroform	1E-01	ug/m^3	9.9E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	2.3E-07	1.2E-01	ug/m3	1.0E+02	ug/m3	1.2E-03
				Ethylbenzene	2E+00	ug/m^3	1.9E-01	ug/m3	2.5E-06	(ug/m3)$^{-1}$	4.7E-07	2.2E+00	ug/m3	1.0E+03	ug/m3	2.2E-03
				Vinyl chloride	8E-01	ug/m^3	6.4E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	3.7E-06	7.5E-01	ug/m3	1.0E+02	ug/m3	7.5E-03
			Exp. Route Total								6E-06					8E-02
		Exposure Point Total									6E-06					8E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.10.RME for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m^3) x Unit Risk (ug/m^3)$^{-1}$ x ET (hr/day) / CF (24 hr/day)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.61.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion													
				Benzo(a)anthracene	5E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.1E-05	3.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.9E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-04	3.3E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	1.3E-05	4.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	3.0E-02	mg/kg-day	6.7E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	2.4E-07	7.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	3.2E-06	2.7E-03	mg/kg-day	2.0E-02	mg/kg-day	1.3E-01
				Carbazole	5E-01	mg/kg	2.6E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	5.2E-09	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.4E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	9.4E-08	2.8E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.6E-05	4.7E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	4.0E-03	mg/kg-day	3.9E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	6.6E-06	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	3.0E-02	mg/kg-day	1.8E-03
				Aroclor-1248	4E-01	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	2.0E-07	2.3E-06	mg/kg-day	2.0E-05	mg/kg-day	1.2E-01
				Aroclor-1254	2E-01	mg/kg	9.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	9.4E-08	1.1E-06	mg/kg-day	2.0E-05	mg/kg-day	5.5E-02
				Aroclor-1260	2E-01	mg/kg	1.4E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.4E-07	1.6E-06	mg/kg-day	2.0E-05	mg/kg-day	7.9E-02
				Dieldrin	2E-01	mg/kg	9.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	1.5E-06	1.1E-06	mg/kg-day	5.0E-05	mg/kg-day	2.2E-02
				Dioxin TEQ	4E-05	mg/kg	2.0E-11	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	2.6E-06	2.4E-10	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.8E-03	mg/kg-day	N/A	N/A	N/A	5.6E-02	mg/kg-day	1.0E+00	mg/kg-day	5.6E-02
				Arsenic	1E+01	mg/kg	7.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.1E-05	8.3E-05	mg/kg-day	3.0E-04	mg/kg-day	2.8E-01
				Cadmium (other media)	9E+00	mg/kg	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-03	mg/kg-day	5.7E-02
				Chromium	3E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	3.0E-03	mg/kg-day	6.1E-01
				Cobalt	8E+00	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-04	mg/kg-day	1.6E-01
				Copper	3E+02	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	4.0E-02	mg/kg-day	4.1E-02
				Iron	3E+04	mg/kg	1.6E-02	mg/kg-day	N/A	N/A	N/A	1.8E-01	mg/kg-day	7.0E-01	mg/kg-day	2.6E-01
				Lead												
				Manganese (other media)	8E+02	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-02	mg/kg-day	7.7E-02
				Mercury (other media)	7E-01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-04	mg/kg-day	4.4E-02
				Thallium	2E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	8.0E-05	mg/kg-day	1.8E-01
				Vanadium	3E+01	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	7.0E-03	mg/kg-day	2.5E-02
				Zinc	5E+02	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	3.0E-01	mg/kg-day	1.1E-02
			Exp. Route Total								2E-04					2E+00
			Dermal													
				Benzo(a)anthracene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	8.3E-06	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	8.1E-05	2.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	9.7E-06	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) $^{-1}$	1.7E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) $^{-1}$	1.8E-06	1.5E-03	mg/kg-day	2.0E-02	mg/kg-day	7.5E-02
				Carbazole	5E-01	mg/kg	1.9E-07	mg/kg-day	2.0E-02	(mg/kg-day) $^{-1}$	3.7E-09	2.2E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.61.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) $^{-1}$	6.8E-08	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) $^{-1}$	1.1E-05	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-08	mg/kg-day	N/A	N/A	N/A	8.7E-07	mg/kg-day	4.0E-03	mg/kg-day	2.2E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) $^{-1}$	4.8E-06	1.4E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Aroclor-1248	4E-01	mg/kg	1.5E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.5E-07	1.8E-06	mg/kg-day	2.0E-05	mg/kg-day	9.0E-02
				Aroclor-1254	2E-01	mg/kg	7.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	7.4E-08	8.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.3E-02
				Aroclor-1260	2E-01	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) $^{-1}$	1.1E-07	1.2E-06	mg/kg-day	2.0E-05	mg/kg-day	6.2E-02
				Dieldrin	2E-01	mg/kg	5.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) $^{-1}$	8.5E-07	6.2E-07	mg/kg-day	5.0E-05	mg/kg-day	1.2E-02
				Dioxin TEQ	4E-05	mg/kg	3.4E-12	mg/kg-day	1.3E+05	(mg/kg-day) $^{-1}$	4.4E-07	4.0E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) $^{-1}$	1.8E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.7E-02
				Cadmium (other media)	9E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	2.5E-05	mg/kg-day	1.3E-02
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-04					3E-01
		Exposure Point Total									3E-04					3E+00
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation													
				1,1'-Biphenyl	6E-02	ug/m^3	3.4E-03	ug/m3	N/A	N/A	N/A	4.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m^3	2.6E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	3.0E+00	ug/m3	1.0E-01
				Acenaphthene	1E-01	ug/m^3	6.8E-03	ug/m3	N/A	N/A	N/A	7.9E-02	ug/m3	3.0E+00	ug/m3	2.6E-02
				Acetophenone	1E-01	ug/m^3	6.0E-03	ug/m3	N/A	N/A	N/A	7.0E-02	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m^3	2.5E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m^3	5.5E-02	ug/m3	3.4E-05	(ug/m3) $^{-1}$	1.9E-06	6.4E-01	ug/m3	3.0E+00	ug/m3	2.1E-01
				1,4-Dichlorobenzene	4E-01	ug/m^3	2.3E-02	ug/m3	1.1E-05	(ug/m3) $^{-1}$	2.5E-07	2.7E-01	ug/m3	8.0E+02	ug/m3	3.4E-04
				Benzene	2E+02	ug/m^3	8.2E+00	ug/m3	7.8E-06	(ug/m3) $^{-1}$	6.4E-05	9.6E+01	ug/m3	3.0E+01	ug/m3	3.2E+00
				Carbon disulfide	2E+02	ug/m^3	8.5E+00	ug/m3	N/A	N/A	N/A	1.0E+02	ug/m3	7.0E+02	ug/m3	1.4E-01
				Ethylbenzene	6E+00	ug/m^3	3.5E-01	ug/m3	2.5E-06	(ug/m3) $^{-1}$	8.8E-07	4.1E+00	ug/m3	1.0E+03	ug/m3	4.1E-03
				Methyl acetate	5E+01	ug/m^3	2.6E+00	ug/m3	N/A	N/A	N/A	3.0E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m^3	1.2E+00	ug/m3	5.9E-06	(ug/m3) $^{-1}$	7.3E-06	1.4E+01	ug/m3	2.7E+02	ug/m3	5.4E-02
				Toluene	2E+03	ug/m^3	1.3E+02	ug/m3	N/A	N/A	N/A	1.5E+03	ug/m3	5.0E+03	ug/m3	3.0E-01

TABLE 7.61.CT

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Xylene (Total)	8E+01	ug/m^3	4.3E+00	ug/m3	N/A	N/A	N/A	5.0E+01	ug/m3	1.0E+02	ug/m3	5.0E-01
			Exp. Route Total								7E-05					5E+00
		Exposure Point Total									7E-05					5E+00
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Groundwater	Indoor Air	Nunes Parcel	Inhalation													
				Naphthalene	7E-02	ug/m^3	3.7E-03	ug/m3	3.4E-05	(ug/m3)$^{-1}$	1.3E-07	4.4E-02	ug/m3	3.0E+00	ug/m3	1.5E-02
				1,4-Dichlorobenzene	6E-02	ug/m^3	3.2E-03	ug/m3	1.1E-05	(ug/m3)$^{-1}$	3.6E-08	3.8E-02	ug/m3	8.0E+02	ug/m3	4.7E-05
				Benzene	2E+00	ug/m^3	8.2E-02	ug/m3	7.8E-06	(ug/m3)$^{-1}$	6.4E-07	9.6E-01	ug/m3	3.0E+01	ug/m3	3.2E-02
				Chloroform	1E-01	ug/m^3	6.6E-03	ug/m3	2.3E-05	(ug/m3)$^{-1}$	1.5E-07	7.7E-02	ug/m3	1.0E+02	ug/m3	7.7E-04
				Ethylbenzene	2E-01	ug/m^3	8.7E-03	ug/m3	2.5E-06	(ug/m3)$^{-1}$	2.2E-08	1.0E-01	ug/m3	1.0E+03	ug/m3	1.0E-04
				Vinyl chloride	8E-01	ug/m^3	4.3E-02	ug/m3	4.4E-06	(ug/m3)$^{-1}$	2.5E-06	5.0E-01	ug/m3	1.0E+02	ug/m3	5.0E-03
			Exp. Route Total								3E-06					5E-02
		Exposure Point Total									3E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A				Total of Receptor Hazards Across All Media	N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.10.CT for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m^3) x Unit Risk (ug/m^3)$^{-1}$ x ET (hr/day) / CF (24 hr/day)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	6E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	8E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-08	- -	2E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	- -	1E-08	- -	4E-08	Liver	4E-04	- -	3E-04	7E-04
			Carbazole	1E-09	- -	8E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-05	- -	7E-05	1E-04
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Dieldrin	2E-06	- -	9E-07	- -	3E-06	Liver	8E-03	- -	7E-03	2E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	4E-06	- -	7E-07	- -	5E-06	Skin	4E-02	- -	9E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-04	- -	N/A	8E-04
			Chemical Total	2E-05	- -	1E-05	- -	3E-05		2E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	3E-08	- -	3E-08	Liver	- -	- -	8E-05	8E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-03	1E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	2E-03	2E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	3E-08	- -	3E-08		- -	- -	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						3E-08					3E-03
	Exposure Medium Total							3E-08					3E-03
Medium Total								3E-08					3E-03

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank											
			Benzo(a)anthracene	2E-07	- -	4E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	7E-09	- -	1E-08	Liver	5E-05	- -	7E-05	1E-04
			Carbazole	6E-10	- -	2E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	5E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	2E-03	- -	3E-03	4E-03
			Aroclor-1260	3E-08	- -	9E-08	- -	1E-07	General Toxicity/Immune System	3E-03	- -	6E-03	9E-03
			Dieldrin	2E-08	- -	4E-08	- -	6E-08	Liver	1E-04	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	5E-04	- -	N/A	5E-04
			Arsenic	8E-07	- -	4E-07	- -	1E-06	Skin	7E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	7E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Chemical Total	2E-06	- -	4E-06	- -	7E-06		4E-02	- -	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					5E-02
	Exposure Medium Total							7E-06					5E-02
Medium Total								7E-06					5E-02
Receptor Total								3E-05					3E-01

TABLE 9.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	7E-03

TABLE 9.1.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	1E-09	- -	3E-09	Liver	2E-05	- -	3E-05	5E-05
			Carbazole	3E-10	- -	4E-10	- -	6E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	7E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	1E-08	- -	2E-08	- -	4E-08	General Toxicity/Immune System	3E-03	- -	7E-03	9E-03
			Dieldrin	1E-07	- -	1E-07	- -	2E-07	Liver	5E-04	- -	9E-04	1E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	7E-07	- -	2E-07	- -	9E-07	Skin	6E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-04	- -	6E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	N/A	5E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	2E-06	- -	3E-06	- -	6E-06		3E-02	- -	1E-02	4E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					4E-02
	Exposure Medium Total							6E-06					4E-02
Medium Total								6E-06					4E-02
Surface Water	Surface Water	Southern Bank											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	4E-05	4E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	6E-04	6E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	8E-04	8E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						1E-08					1E-03
	Exposure Medium Total							1E-08					1E-03
Medium Total								1E-08					1E-03

TABLE 9.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank											
			Benzo(a)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-07	- -	1E-06	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-09	- -	6E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	- -	3E-09	- -	4E-09	Liver	1E-05	- -	3E-05	5E-05
			Carbazole	1E-10	- -	7E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	1E-05	1E-05
			Indeno(1,2,3-cd)pyrene	1E-08	- -	6E-08	- -	7E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	4E-04	- -	1E-03	2E-03
			Aroclor-1260	4E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	8E-04	- -	3E-03	4E-03
			Dieldrin	5E-09	- -	2E-08	- -	2E-08	Liver	3E-05	- -	7E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-04	- -	N/A	5E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	3E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	6E-07	- -	2E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								8E-06					6E-02

TABLE 9.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 8E-06

Total Hazard Across All Media: 6E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	1E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	7E-03
Total CNS HI =	2E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	2E-03

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel											
			Benzo(a)anthracene	7E-07	- -	6E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	9E-06	- -	8E-06	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-08	- -	3E-08	- -	7E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	3E-09	- -	3E-09	- -	6E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-05	- -	3E-05	9E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	4E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	2E-04	4E-04
			Aroclor-1260	3E-07	- -	2E-07	- -	5E-07	General Toxicity/Immune System	2E-02	- -	2E-02	3E-02
			Dieldrin	8E-07	- -	5E-07	- -	1E-06	Liver	3E-03	- -	2E-03	4E-03
			Dioxin TEQ	2E-06	- -	4E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-02	- -	N/A	1E-02
			Arsenic	9E-06	- -	2E-06	- -	1E-05	Skin	5E-02	- -	1E-02	6E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-02	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-02	- -	N/A	7E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	4E-02	- -	N/A	4E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	8E-03	- -	N/A	8E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Chemical Total	2E-05	- -	1E-05	- -	4E-05		3E-01	- -	3E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						4E-05					3E-01
	Exposure Medium Total							4E-05					3E-01
Medium Total								4E-05					3E-01
Receptor Total								4E-05					3E-01

TABLE 9.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 4E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	1E-01
Total Immune System HI =	3E-02
Total Kidney HI =	1E-02
Total Liver HI =	4E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	4E-02

TABLE 9.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	2E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	5E-10	- -	8E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	3E-05	5E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	2E-04	3E-04
			Aroclor-1260	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	8E-03	- -	1E-02	2E-02
			Dieldrin	1E-07	- -	2E-07	- -	3E-07	Liver	1E-03	- -	2E-03	3E-03
			Dioxin TEQ	3E-07	- -	1E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-03	- -	N/A	5E-03
			Arsenic	1E-06	- -	5E-07	- -	2E-06	Skin	2E-02	- -	9E-03	3E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	5E-03	- -	3E-03	7E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Chemical Total	4E-06	- -	4E-06	- -	8E-06		1E-01	- -	3E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						8E-06					2E-01
	Exposure Medium Total							8E-06					2E-01
Medium Total								8E-06					2E-01
Receptor Total								8E-06					2E-01

TABLE 9.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 8E-06

Total Hazard Across All Media: 2E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	5E-02
Total Immune System HI =	2E-02
Total Kidney HI =	8E-03
Total Liver HI =	2E-02
Total CNS HI =	8E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	2E-02

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	3E-07	- -	3E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	3E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	4E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	1E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	3E-09	- -	7E-09	Liver	4E-05	- -	3E-05	7E-05
			Carbazole	1E-09	- -	9E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	3E-05	7E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	3E-05	7E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	4E-07	- -	3E-07	- -	7E-07	General Toxicity/Immune System	3E-02	- -	2E-02	5E-02
			Dieldrin	3E-06	- -	2E-06	- -	4E-06	Liver	9E-03	- -	6E-03	1E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	8E-03	- -	N/A	8E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-03	- -	N/A	3E-03
			Arsenic	6E-06	- -	1E-06	- -	7E-06	Skin	4E-02	- -	8E-03	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	1E-03	5E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-02	- -	N/A	7E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-03	- -	N/A	7E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Chemical Total	1E-05	- -	7E-06	- -	2E-05		2E-01	- -	4E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					3E-01
	Exposure Medium Total							2E-05					3E-01
Medium Total								2E-05					3E-01
Receptor Total								2E-05					3E-01

TABLE 9.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	1E-01
Total Immune System HI =	5E-02
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	1E-02

TABLE 9.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	5E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-09	- -	5E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-10	- -	9E-10	- -	2E-09	Liver	2E-05	- -	2E-05	4E-05
			Carbazole	2E-10	- -	3E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	7E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	3E-05	5E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	3E-08	- -	5E-08	- -	8E-08	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	4E-07	- -	5E-07	- -	9E-07	Liver	4E-03	- -	5E-03	9E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	1E-06	- -	4E-07	- -	1E-06	Skin	2E-02	- -	7E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	9E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	2E-06	- -	2E-06	- -	4E-06		1E-01	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01
Medium Total								4E-06					1E-01
Receptor Total								4E-06					1E-01

TABLE 9.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 4E-06

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	4E-02
Total Immune System HI =	3E-02
Total Kidney HI =	4E-03
Total Liver HI =	2E-02
Total CNS HI =	6E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	6E-03

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel											
			Benzo(a)anthracene	4E-07	- -	2E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-06	- -	3E-06	- -	8E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	5E-07	- -	3E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	1E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	7E-10	- -	4E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	- -	4E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	1E-05	4E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	1E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	7E-05	2E-04
			Aroclor-1260	6E-08	- -	3E-08	- -	9E-08	General Toxicity/Immune System	1E-02	- -	6E-03	2E-02
			Dieldrin	2E-07	- -	7E-08	- -	2E-07	Liver	2E-03	- -	6E-04	2E-03
			Dioxin TEQ	5E-07	- -	6E-08	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-03	- -	N/A	6E-03
			Arsenic	2E-06	- -	3E-07	- -	2E-06	Skin	3E-02	- -	4E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	1E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Chemical Total	1E-05	- -	4E-06	- -	1E-05		2E-01	- -	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
Medium Total								1E-05					2E-01
Surface Water	Surface Water	Downstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	2E-04	2E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	6E-04	6E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	5E-04	5E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	2E-03	2E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Chemical Total	- -	- -	2E-08	- -	2E-08		- -	- -	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					3E-03
	Exposure Medium Total							2E-08					3E-03
Medium Total								2E-08					3E-03
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	2E-07	- -	6E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	6E-06	- -	9E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	7E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	4E-08	- -	6E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	4E-09	- -	5E-09	Liver	4E-05	- -	9E-05	1E-04
			Carbazole	2E-10	- -	7E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	7E-05	1E-04
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	9E-08	- -	3E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	5E-02	7E-02
			Aroclor-1260	3E-08	- -	1E-07	- -	1E-07	General Toxicity/Immune System	5E-03	- -	2E-02	2E-02
			Dieldrin	4E-09	- -	1E-08	- -	1E-08	Liver	4E-05	- -	9E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	6E-07	- -	4E-07	- -	1E-06	Skin	9E-03	- -	6E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	5E-03	- -	5E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	N/A	1E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	N/A	8E-04
			Chemical Total	4E-06	- -	1E-05	- -	1E-05		7E-02	- -	8E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
Medium Total								1E-05					2E-01
Receptor Total								3E-05					3E-01

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-01
Total GI System HI =	9E-02
Total Immune System HI =	1E-01
Total Kidney HI =	2E-02
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	9E-03
Total Endocrine HI =	3E-02

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-07	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	1E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	6E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	2E-10	- -	2E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	2E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	6E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	7E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	3E-05	7E-05
			Aroclor-1260	7E-09	- -	9E-09	- -	2E-08	General Toxicity/Immune System	3E-03	- -	3E-03	6E-03
			Dieldrin	4E-08	- -	4E-08	- -	8E-08	Liver	4E-04	- -	3E-04	7E-04
			Dioxin TEQ	1E-07	- -	2E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Arsenic	5E-07	- -	1E-07	- -	6E-07	Skin	8E-03	- -	2E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	5E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	N/A	1E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	9E-04	- -	N/A	9E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Chemical Total	2E-06	- -	2E-06	- -	5E-06		4E-02	- -	6E-03	5E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					5E-02
	Exposure Medium Total							5E-06					5E-02
Medium Total								5E-06					5E-02
Surface Water	Surface Water	Downstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	3E-06	3E-06
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	9E-05	9E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	3E-04	3E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	1E-03	1E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	1E-04	1E-04
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						1E-08					2E-03
	Exposure Medium Total							1E-08					2E-03
Medium Total								1E-08					2E-03
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	5E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-07	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	6E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	- -	2E-09	- -	2E-09	Liver	1E-05	- -	5E-05	6E-05
			Carbazole	6E-11	- -	4E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	6E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	7E-06	9E-06
			Indeno(1,2,3-cd)pyrene	3E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-06	- -	4E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-08	- -	7E-08	- -	9E-08	General Toxicity/Immune System	4E-03	- -	3E-02	3E-02
			Aroclor-1260	4E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	1E-03	- -	9E-03	1E-02
			Dieldrin	1E-09	- -	5E-09	- -	6E-09	Liver	1E-05	- -	4E-05	5E-05
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-04	- -	N/A	3E-04
			Arsenic	1E-07	- -	2E-07	- -	3E-07	Skin	2E-03	- -	3E-03	5E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-04	- -	N/A	3E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	9E-07	- -	5E-06	- -	6E-06		2E-02	- -	4E-02	6E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					6E-02
	Exposure Medium Total							6E-06					6E-02
Medium Total								6E-06					6E-02
Receptor Total								1E-05					1E-01

TABLE 9.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 1E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	2E-02
Total Immune System HI =	5E-02
Total Kidney HI =	6E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	7E-03

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	2E-07	- -	1E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-07	- -	1E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	6E-09	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	4E-10	- -	1E-09	Liver	2E-05	- -	1E-05	3E-05
			Carbazole	2E-10	- -	1E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	2E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	1E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	8E-08	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	1E-05	3E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	8E-08	- -	5E-08	- -	1E-07	General Toxicity/Immune System	1E-02	- -	9E-03	2E-02
			Dieldrin	6E-07	- -	2E-07	- -	8E-07	Liver	5E-03	- -	2E-03	7E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	1E-06	- -	2E-07	- -	2E-06	Skin	2E-02	- -	3E-03	3E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	4E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	8E-03	- -	N/A	8E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	5E-06	- -	2E-06	- -	7E-06		1E-01	- -	1E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						7E-06					1E-01
	Exposure Medium Total							7E-06					1E-01
Medium Total								7E-06					1E-01
Surface Water	Surface Water	Upstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	1E-07	- -	1E-07	Liver	- -	- -	2E-03	2E-03
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	1E-09	- -	1E-09	Liver	- -	- -	6E-05	6E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	1E-03	1E-03
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	4E-03	4E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	4E-04	4E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	5E-03	5E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	5E-04	5E-04
			Chemical Total	- -	- -	1E-07	- -	1E-07		- -	- -	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						1E-07					1E-02
	Exposure Medium Total							1E-07					1E-02
Medium Total								1E-07					1E-02
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	8E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	8E-07	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	2E-08	- -	2E-08	Liver	2E-04	- -	4E-04	6E-04
			Carbazole	1E-10	- -	3E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	3E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	8E-04	- -	3E-03	4E-03
			Aroclor-1260	4E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	8E-03	- -	3E-02	3E-02
			Dieldrin	5E-08	- -	1E-07	- -	2E-07	Liver	4E-04	- -	1E-03	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-07	- -	4E-07	- -	9E-07	Skin	9E-03	- -	6E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	4E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	2E-06	- -	4E-06	- -	6E-06		6E-02	- -	4E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-06					1E-01
	Exposure Medium Total							6E-06					1E-01
Medium Total								6E-06					1E-01
Receptor Total								1E-05					3E-01

TABLE 9.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	1E-02
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	2E-02

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	5E-08	- -	5E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-08	- -	7E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-09	- -	3E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-10	- -	2E-10	- -	4E-10	Liver	6E-06	- -	5E-06	1E-05
			Carbazole	6E-11	- -	6E-11	- -	1E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	6E-06	- -	5E-06	1E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	4E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-06	- -	6E-06	1E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	1E-08	- -	1E-08	- -	2E-08	General Toxicity/Immune System	4E-03	- -	4E-03	8E-03
			Dieldrin	1E-07	- -	1E-07	- -	3E-07	Liver	1E-03	- -	1E-03	2E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	4E-04	- -	N/A	4E-04
			Arsenic	4E-07	- -	9E-08	- -	4E-07	Skin	6E-03	- -	1E-03	7E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	2E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	N/A	1E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-04	- -	N/A	5E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-04	- -	N/A	3E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	N/A	5E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	6E-05	- -	N/A	6E-05
			Chemical Total	1E-06	- -	1E-06	- -	2E-06		3E-02	- -	7E-03	4E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					4E-02
	Exposure Medium Total							2E-06					4E-02
Medium Total								2E-06					4E-02
Surface Water	Surface Water	Upstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	6E-04	6E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	3E-10	- -	3E-10	Liver	- -	- -	1E-05	1E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	6E-09	- -	6E-09	Liver	- -	- -	3E-04	3E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	8E-04	8E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	1E-03	1E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	1E-04	1E-04
			Chemical Total	- -	- -	3E-08	- -	3E-08		- -	- -	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						3E-08					3E-03
	Exposure Medium Total							3E-08					3E-03
Medium Total								3E-08					3E-03
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-08	- -	8E-08	- -	9E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-07	- -	7E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-10	- -	4E-09	- -	4E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	- -	4E-09	- -	5E-09	Liver	2E-05	- -	9E-05	1E-04
			Carbazole	3E-11	- -	2E-10	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	6E-06	7E-06
			Indeno(1,2,3-cd)pyrene	6E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	9E-06	1E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-10	- -	1E-09	- -	2E-09	General Toxicity/Immune System	8E-05	- -	5E-04	6E-04
			Aroclor-1260	2E-09	- -	1E-08	- -	1E-08	General Toxicity/Immune System	7E-04	- -	4E-03	5E-03
			Dieldrin	4E-09	- -	2E-08	- -	2E-08	Liver	4E-05	- -	2E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-04	- -	N/A	4E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	9E-08	- -	1E-07	- -	2E-07	Skin	1E-03	- -	2E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	7E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-03	- -	N/A	1E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	N/A	1E-04
			Chemical Total	3E-07	- -	1E-06	- -	1E-06		8E-03	- -	8E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-02
	Exposure Medium Total							1E-06					2E-02
Medium Total								1E-06					2E-02
Receptor Total								4E-06					6E-02

TABLE 9.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 4E-06

Total Hazard Across All Media: 6E-02

Total Blood HI =	7E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	3E-03

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	4E-07	- -	2E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	2E-06	- -	5E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	5E-07	- -	3E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	1E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	5E-09	- -	2E-09	- -	8E-09	Liver	1E-04	- -	6E-05	2E-04
			Carbazole	3E-10	- -	2E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	- -	4E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	6E-06	2E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	1E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	2E-05	7E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	4E-08	- -	2E-08	- -	6E-08	General Toxicity/Immune System	7E-03	- -	4E-03	1E-02
			Aroclor-1260	6E-08	- -	3E-08	- -	9E-08	General Toxicity/Immune System	1E-02	- -	6E-03	2E-02
			Dieldrin	2E-07	- -	6E-08	- -	2E-07	Liver	1E-03	- -	6E-04	2E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-03	- -	N/A	6E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-06	- -	2E-07	- -	2E-06	Skin	3E-02	- -	4E-03	3E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	5E-03	- -	8E-04	6E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Chemical Total	7E-06	- -	3E-06	- -	1E-05		1E-01	- -	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
Medium Total								1E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	1E-07	- -	1E-07	Liver	- -	- -	2E-03	2E-03
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	1E-09	- -	1E-09	Liver	- -	- -	6E-05	6E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	1E-03	1E-03
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	4E-03	4E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	4E-04	4E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	5E-03	5E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	5E-04	5E-04
			Chemical Total	- -	- -	1E-07	- -	1E-07		- -	- -	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						1E-07					1E-02
	Exposure Medium Total							1E-07					1E-02
Medium Total								1E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	8E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	8E-07	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	2E-08	- -	2E-08	Liver	2E-04	- -	4E-04	6E-04
			Carbazole	1E-10	- -	3E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	3E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	8E-04	- -	3E-03	4E-03
			Aroclor-1260	4E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	8E-03	- -	3E-02	3E-02
			Dieldrin	5E-08	- -	1E-07	- -	2E-07	Liver	4E-04	- -	1E-03	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-07	- -	4E-07	- -	9E-07	Skin	9E-03	- -	6E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	4E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	2E-06	- -	4E-06	- -	6E-06		6E-02	- -	4E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-06					1E-01
	Exposure Medium Total							6E-06					1E-01
Medium Total								6E-06					1E-01
Receptor Total								2E-05					3E-01

TABLE 9.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	3E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	1E-02

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	5E-08	- -	5E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	4E-07	- -	5E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	8E-08	- -	8E-08	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	5E-09	- -	5E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	- -	4E-10	- -	8E-10	Liver	1E-05	- -	9E-06	2E-05
			Carbazole	9E-11	- -	9E-11	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	3E-06	6E-06
			Indeno(1,2,3-cd)pyrene	3E-08	- -	3E-08	- -	6E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	7E-06	1E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-09	- -	2E-09	- -	3E-09	General Toxicity/Immune System	6E-04	- -	6E-04	1E-03
			Aroclor-1260	2E-09	- -	3E-09	- -	5E-09	General Toxicity/Immune System	9E-04	- -	1E-03	2E-03
			Dieldrin	2E-08	- -	1E-08	- -	3E-08	Liver	1E-04	- -	1E-04	3E-04
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	3E-07	- -	7E-08	- -	3E-07	Skin	4E-03	- -	1E-03	5E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	2E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-04	- -	N/A	4E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-04	- -	N/A	5E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	N/A	4E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	7E-05	- -	N/A	7E-05
			Chemical Total	1E-06	- -	8E-07	- -	2E-06		2E-02	- -	3E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Surface Water	Surface Water	Upstream of Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	6E-04	6E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	3E-10	- -	3E-10	Liver	- -	- -	1E-05	1E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	6E-09	- -	6E-09	Liver	- -	- -	3E-04	3E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	8E-04	8E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	1E-03	1E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	1E-04	1E-04
			Chemical Total	- -	- -	3E-08	- -	3E-08		- -	- -	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						3E-08					3E-03
	Exposure Medium Total							3E-08					3E-03
Medium Total								3E-08					3E-03
Sediment	Sediment	Upstream of Landfill											

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-08	- -	8E-08	- -	9E-08	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-07	- -	7E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-10	- -	4E-09	- -	4E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	- -	4E-09	- -	5E-09	Liver	2E-05	- -	9E-05	1E-04
			Carbazole	3E-11	- -	2E-10	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	6E-06	7E-06
			Indeno(1,2,3-cd)pyrene	6E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	9E-06	1E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-10	- -	1E-09	- -	2E-09	General Toxicity/Immune System	8E-05	- -	5E-04	6E-04
			Aroclor-1260	2E-09	- -	1E-08	- -	1E-08	General Toxicity/Immune System	7E-04	- -	4E-03	5E-03
			Dieldrin	4E-09	- -	2E-08	- -	2E-08	Liver	4E-05	- -	2E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-04	- -	N/A	4E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	9E-08	- -	1E-07	- -	2E-07	Skin	1E-03	- -	2E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	7E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-03	- -	N/A	1E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	N/A	1E-04
			Chemical Total	3E-07	- -	1E-06	- -	1E-06		8E-03	- -	8E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-02
	Exposure Medium Total							1E-06					2E-02
Medium Total								1E-06					2E-02
Receptor Total								3E-06					4E-02

TABLE 9.6.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-06

Total Hazard Across All Media: 4E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-03
Total GI System HI =	1E-02
Total Immune System HI =	9E-03
Total Kidney HI =	3E-03
Total Liver HI =	6E-03
Total CNS HI =	2E-03
Total Skin HI =	8E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	1E-03

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	2E-07	- -	1E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	1E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	9E-07	- -	1E-07	- -	1E-06	Skin	1E-02	- -	2E-03	2E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	7E-03	- -	N/A	7E-03
			Chemical Total	1E-06	- -	2E-07	- -	1E-06		3E-02	- -	2E-03	3E-02
			Radionuclide Total										
		Exposure Point Total						1E-06					3E-02
	Exposure Medium Total							1E-06					3E-02
Medium Total								1E-06					3E-02
Surface Water	Surface Water	Wetlands											
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	5E-04	5E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			beta-BHC	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	1E-05	1E-05
			Arsenic	- -	- -	7E-09	- -	7E-09	Skin	- -	- -	1E-04	1E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	1E-04	1E-04
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	5E-05	5E-05
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Chemical Total	- -	- -	3E-08	- -	3E-08		- -	- -	7E-04	7E-04
			Radionuclide Total										
		Exposure Point Total						3E-08					7E-04
	Exposure Medium Total							3E-08					7E-04
Medium Total								3E-08					7E-04
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	9E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	3E-06	- -	5E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	4E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	1E-10	- -	4E-10	- -	6E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	6E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	8E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	6E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	1E-03	- -	3E-03	4E-03

TABLE 9.7.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-03	- -	N/A	5E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	8E-04	- -	N/A	8E-04
			Arsenic	5E-07	- -	3E-07	- -	8E-07	Skin	7E-03	- -	5E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Chemical Total	2E-06	- -	5E-06	- -	7E-06		5E-02	- -	8E-03	6E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					6E-02
	Exposure Medium Total							7E-06					6E-02
Medium Total								7E-06					6E-02
Receptor Total								9E-06					9E-02

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 9E-06

Total Hazard Across All Media: 9E-02

Total Blood HI =	8E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	2E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	2E-02
Total CNS HI =	3E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	1E-02

TABLE 9.7.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	4E-08	- -	5E-08	- -	9E-08	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	6E-09	- -	7E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	1E-07	- -	3E-08	- -	2E-07	Skin	2E-03	- -	5E-04	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Chemical Total	2E-07	- -	8E-08	- -	3E-07		5E-03	- -	5E-04	5E-03
			Radionuclide Total										
		Exposure Point Total						3E-07					5E-03
	Exposure Medium Total							3E-07					5E-03
Medium Total								3E-07					5E-03
Surface Water	Surface Water	Wetlands											
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	9E-09	- -	9E-09	Liver	- -	- -	2E-04	2E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			beta-BHC	- -	- -	1E-09	- -	1E-09	Liver	- -	- -	6E-06	6E-06
			Arsenic	- -	- -	4E-09	- -	4E-09	Skin	- -	- -	6E-05	6E-05
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	5E-05	5E-05
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	3E-05	3E-05
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	4E-04	4E-04
			Radionuclide Total										
		Exposure Point Total						1E-08					4E-04
	Exposure Medium Total							1E-08					4E-04
Medium Total								1E-08					4E-04
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	2E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	4E-11	- -	2E-10	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	2E-08	- -	1E-07	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	8E-10	- -	5E-09	- -	6E-09	General Toxicity/Immune System	3E-04	- -	2E-03	2E-03

TABLE 9.7.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-04	- -	N/A	2E-04
			Arsenic	1E-07	- -	2E-07	- -	3E-07	Skin	2E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-04	- -	N/A	3E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	N/A	4E-04
			Chemical Total	5E-07	- -	3E-06	- -	3E-06		1E-02	- -	4E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						3E-06					2E-02
	Exposure Medium Total							3E-06					2E-02
Medium Total								3E-06					2E-02
Receptor Total								3E-06					2E-02

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 3E-06

Total Hazard Across All Media: 2E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	6E-03
Total Immune System HI =	2E-03
Total Kidney HI =	4E-04
Total Liver HI =	5E-03
Total CNS HI =	7E-04
Total Skin HI =	7E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-03
Total Endocrine HI =	3E-03

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill											
			Benzo(a)anthracene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-06	- -	3E-06	- -	8E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	2E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	7E-09	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-09	- -	1E-09	- -	4E-09	Liver	6E-05	- -	3E-05	9E-05
			Carbazole	4E-10	- -	2E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	- -	3E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	8E-06	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	8E-08	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	7E-05	2E-04
			Aroclor-1248	1E-06	- -	6E-07	- -	2E-06	General Toxicity/Immune System	2E-01	- -	1E-01	3E-01
			Aroclor-1254	9E-08	- -	5E-08	- -	1E-07	General Toxicity/Immune System	2E-02	- -	9E-03	2E-02
			Aroclor-1260	3E-08	- -	2E-08	- -	5E-08	General Toxicity/Immune System	5E-03	- -	3E-03	8E-03
			Dieldrin	3E-08	- -	1E-08	- -	4E-08	Liver	2E-04	- -	9E-05	3E-04
			Dioxin TEQ	6E-07	- -	8E-08	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-03	- -	N/A	5E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-06	- -	2E-07	- -	2E-06	Skin	3E-02	- -	4E-03	3E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	1E-03	7E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	1E-05	- -	4E-06	- -	1E-05		3E-01	- -	1E-01	4E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					4E-01
	Exposure Medium Total							1E-05					4E-01
Medium Total								1E-05					4E-01
Surface Water	Surface Water	Adjacent to Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	9E-10	- -	9E-10	Liver	- -	- -	2E-05	2E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	7E-08	- -	7E-08	Liver	- -	- -	6E-04	6E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	1E-03	1E-03
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	4E-02	4E-02
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	1E-02	1E-02
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	1E-01	1E-01
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	6E-03	6E-03
			Chemical Total	- -	- -	1E-07	- -	1E-07		- -	- -	2E-01	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-07					2E-01
	Exposure Medium Total							1E-07					2E-01
Medium Total								1E-07					2E-01
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	- -	4E-06	- -	5E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-08	- -	3E-08	- -	4E-08	Liver	3E-04	- -	7E-04	1E-03
			Carbazole	2E-10	- -	6E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	5E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Indeno(1,2,3-cd)pyrene	5E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	6E-05	8E-05
			Aroclor-1242	2E-08	- -	6E-08	- -	8E-08	General Toxicity/Immune System	3E-03	- -	1E-02	1E-02
			Aroclor-1254	3E-08	- -	8E-08	- -	1E-07	General Toxicity/Immune System	4E-03	- -	1E-02	2E-02
			Aroclor-1260	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	2E-03	- -	5E-03	7E-03
			Dieldrin	1E-08	- -	2E-08	- -	4E-08	Liver	1E-04	- -	2E-04	3E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	2E-06	- -	2E-06	- -	4E-06	Skin	4E-02	- -	3E-02	6E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	3E-03	5E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	N/A	1E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	9E-03	- -	N/A	9E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-04	- -	N/A	8E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	9E-04	- -	N/A	9E-04
			Chemical Total	4E-06	- -	7E-06	- -	1E-05		9E-02	- -	6E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					1E-01
	Exposure Medium Total							1E-05					1E-01
Medium Total								1E-05					1E-01
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	6E-07	6E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	9E-05	9E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			N-Nitrosodiphenylamine	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	1E-09	- -	1E-09	Liver	- -	- -	3E-05	3E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	2E-09	- -	2E-09	Liver/Kidney	- -	- -	1E-05	1E-05
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	3E-07	3E-07
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-04	1E-04
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	6E-04	6E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	9E-09	- -	9E-09		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						9E-09					1E-03
	Exposure Medium Total							9E-09					1E-03
Medium Total								9E-09					1E-03
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	1E-11	- -	- -	1E-11	Kidney	- -	1E-07	- -	1E-07
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	9E-05	- -	9E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	3E-06	- -	3E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	2E-05	- -	2E-05
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	5E-09	- -	- -	5E-09	Liver	- -	4E-06	- -	4E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	1E-08	- -	- -	1E-08	Immune System	- -	3E-04	- -	3E-04
			Carbon tetrachloride	- -	5E-11	- -	- -	5E-11	Liver	- -	1E-07	- -	1E-07
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	4E-04	- -	4E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	1E-06	- -	1E-06
			Ethylbenzene	- -	2E-09	- -	- -	2E-09	Developmental	- -	7E-06	- -	7E-06
			Methylene chloride	- -	3E-12	- -	- -	3E-12	Liver	- -	4E-08	- -	4E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	2E-06	- -	2E-06
			Trichloroethene	- -	8E-11	- -	- -	8E-11	CNS	- -	3E-05	- -	3E-05
			Vinyl Chloride	- -	7E-10	- -	- -	7E-10	Liver	- -	1E-05	- -	1E-05
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	4E-05	- -	4E-05
			Chemical Total	- -	2E-08	- -	- -	2E-08		- -	9E-04	- -	9E-04
			Radionuclide Total										
		Exposure Point Total						2E-08					9E-04
	Exposure Medium Total							2E-08					9E-04
Medium Total								2E-08					9E-04
Receptor Total								3E-05					8E-01

TABLE 9.8.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 8E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-01
Total GI System HI =	2E-01
Total Immune System HI =	4E-01
Total Kidney HI =	4E-02
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	2E-05
Total Developmental HI =	4E-02
Total Endocrine HI =	1E-02

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	7E-08	- -	8E-08	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-09	- -	3E-09	- -	6E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	6E-10	- -	5E-10	- -	1E-09	Liver	2E-05	- -	1E-05	3E-05
			Carbazole	9E-11	- -	1E-10	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	1E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	4E-06	9E-06
			Indeno(1,2,3-cd)pyrene	4E-08	- -	4E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	3E-05	7E-05
			Aroclor-1248	1E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	4E-02	- -	5E-02	1E-01
			Aroclor-1254	1E-08	- -	1E-08	- -	2E-08	General Toxicity/Immune System	4E-03	- -	4E-03	8E-03
			Aroclor-1260	4E-09	- -	4E-09	- -	8E-09	General Toxicity/Immune System	1E-03	- -	1E-03	3E-03
			Dieldrin	6E-09	- -	5E-09	- -	1E-08	Liver	6E-05	- -	5E-05	1E-04
			Dioxin TEQ	8E-08	- -	2E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-07	- -	1E-07	- -	6E-07	Skin	7E-03	- -	2E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	5E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	7E-04	- -	N/A	7E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	6E-03	- -	N/A	6E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Chemical Total	2E-06	- -	2E-06	- -	4E-06		8E-02	- -	6E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01
Medium Total								4E-06					1E-01
Surface Water	Surface Water	Adjacent to Landfill											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	2E-10	- -	2E-10	Liver	- -	- -	4E-06	4E-06
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	3E-04	3E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	7E-04	7E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	2E-02	2E-02
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	7E-03	7E-03
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	6E-02	6E-02
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	3E-03	3E-03
			Chemical Total	- -	- -	5E-08	- -	5E-08		- -	- -	9E-02	9E-02
			Radionuclide Total										
		Exposure Point Total						5E-08					9E-02
	Exposure Medium Total							5E-08					9E-02
Medium Total								5E-08					9E-02
Sediment	Sediment	Adjacent to Landfill											

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-09	- -	9E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-09	- -	1E-08	- -	2E-08	Liver	8E-05	- -	4E-04	4E-04
			Carbazole	5E-11	- -	3E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	1E-08	- -	7E-08	- -	9E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	3E-05	3E-05
			Aroclor-1242	2E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	9E-04	- -	6E-03	6E-03
			Aroclor-1254	3E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	1E-03	- -	7E-03	8E-03
			Aroclor-1260	1E-09	- -	8E-09	- -	9E-09	General Toxicity/Immune System	4E-04	- -	3E-03	3E-03
			Dieldrin	3E-09	- -	1E-08	- -	2E-08	Liver	2E-05	- -	1E-04	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-04	- -	N/A	3E-04
			Arsenic	6E-07	- -	8E-07	- -	1E-06	Skin	9E-03	- -	1E-02	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	1E-03	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-03	- -	N/A	1E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-04	- -	N/A	4E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	6E-04	- -	N/A	6E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	1E-06	- -	3E-06	- -	4E-06		2E-02	- -	3E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					5E-02
	Exposure Medium Total							4E-06					5E-02
Medium Total								4E-06					5E-02
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	3E-07	3E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	5E-05	5E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	6E-06	6E-06
			N-Nitrosodiphenylamine	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	7E-10	- -	7E-10	Liver	- -	- -	1E-05	1E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	8E-10	- -	8E-10	Liver/Kidney	- -	- -	5E-06	5E-06
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	7E-06	7E-06
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	1E-09	- -	1E-09	Liver	- -	- -	2E-07	2E-07
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	5E-05	5E-05
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	3E-04	3E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	5E-09	- -	5E-09		- -	- -	6E-04	6E-04
			Radionuclide Total										
		Exposure Point Total						5E-09					6E-04
	Exposure Medium Total							5E-09					6E-04
Medium Total								5E-09					6E-04
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	4E-12	- -	- -	4E-12	Kidney	- -	3E-08	- -	3E-08
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	3E-05	- -	3E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	1E-06	- -	1E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	7E-06	- -	7E-06
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	2E-09	- -	- -	2E-09	Liver	- -	1E-06	- -	1E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	3E-09	- -	- -	3E-09	Immune System	- -	1E-04	- -	1E-04
			Carbon tetrachloride	- -	2E-11	- -	- -	2E-11	Liver	- -	5E-08	- -	5E-08
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	1E-04	- -	1E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	4E-07	- -	4E-07
			Ethylbenzene	- -	8E-10	- -	- -	8E-10	Developmental	- -	2E-06	- -	2E-06
			Methylene chloride	- -	1E-12	- -	- -	1E-12	Liver	- -	2E-08	- -	2E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	7E-07	- -	7E-07
			Trichloroethene	- -	3E-11	- -	- -	3E-11	CNS	- -	1E-05	- -	1E-05
			Vinyl Chloride	- -	2E-10	- -	- -	2E-10	Liver	- -	4E-06	- -	4E-06
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	1E-05	- -	1E-05
			Chemical Total	- -	6E-09	- -	- -	6E-09		- -	3E-04	- -	3E-04
			Radionuclide Total										
		Exposure Point Total						6E-09					3E-04
	Exposure Medium Total							6E-09					3E-04
Medium Total								6E-09					3E-04
Receptor Total								9E-06					3E-01

TABLE 9.8.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 9E-06

Total Hazard Across All Media: 3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-01
Total GI System HI =	8E-02
Total Immune System HI =	1E-01
Total Kidney HI =	2E-02
Total Liver HI =	1E-02
Total CNS HI =	3E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	2E-02
Total Endocrine HI =	3E-03

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank											
			Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-07	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	3E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	3E-09	- -	5E-09	Liver	4E-05	- -	8E-05	1E-04
			Carbazole	2E-10	- -	7E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	1E-07	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	7E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	6E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	1E-03	- -	3E-03	5E-03
			Aroclor-1260	1E-08	- -	4E-08	- -	5E-08	General Toxicity/Immune System	2E-03	- -	7E-03	1E-02
			Dieldrin	9E-09	- -	2E-08	- -	3E-08	Liver	8E-05	- -	2E-04	3E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-04	- -	N/A	3E-04
			Arsenic	3E-07	- -	2E-07	- -	5E-07	Skin	5E-03	- -	3E-03	8E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	9E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-04	- -	N/A	4E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	N/A	4E-04
			Chemical Total	1E-06	- -	3E-06	- -	5E-06		3E-02	- -	2E-02	4E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					4E-02
	Exposure Medium Total							5E-06					4E-02
Medium Total								5E-06					4E-02
Receptor Total								5E-06					4E-02

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 5E-06

Total Hazard Across All Media: 4E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	8E-03
Total Immune System HI =	1E-02
Total Kidney HI =	2E-03
Total Liver HI =	4E-03
Total CNS HI =	1E-03
Total Skin HI =	8E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-03
Total Endocrine HI =	5E-03

TABLE 9.9.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank											
			Benzo(a)anthracene	3E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-07	- -	1E-06	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	9E-10	- -	6E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	- -	2E-09	- -	2E-09	Liver	9E-06	- -	4E-05	5E-05
			Carbazole	6E-11	- -	4E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	9E-09	- -	5E-08	- -	6E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	8E-10	- -	5E-09	- -	6E-09	General Toxicity/Immune System	3E-04	- -	2E-03	2E-03
			Aroclor-1260	2E-09	- -	1E-08	- -	1E-08	General Toxicity/Immune System	6E-04	- -	4E-03	4E-03
			Dieldrin	2E-09	- -	1E-08	- -	1E-08	Liver	2E-05	- -	9E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-04	- -	N/A	3E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	9E-05	- -	N/A	9E-05
			Arsenic	8E-08	- -	1E-07	- -	2E-07	Skin	1E-03	- -	2E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	4E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-03	- -	N/A	1E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	9E-04	- -	N/A	9E-04
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-04	- -	N/A	1E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-04	- -	N/A	3E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	N/A	1E-04
			Chemical Total	3E-07	- -	2E-06	- -	2E-06		7E-03	- -	8E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					1E-02
	Exposure Medium Total							2E-06					1E-02
Medium Total								2E-06					1E-02
Receptor Total								2E-06					1E-02

TABLE 9.9.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 2E-06

Total Hazard Across All Media: 1E-02

Total Blood HI =	3E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-03
Total GI System HI =	2E-03
Total Immune System HI =	6E-03
Total Kidney HI =	8E-04
Total Liver HI =	1E-03
Total CNS HI =	3E-04
Total Skin HI =	3E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-04
Total Endocrine HI =	1E-03

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	3E-10	- -	- -	3E-10	Kidney	- -	1E-06	- -	1E-06
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	1E-03	- -	1E-03
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	4E-05	- -	4E-05
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	2E-04	- -	2E-04
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	2E-07	- -	- -	2E-07	Liver	- -	5E-05	- -	5E-05
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	3E-07	- -	- -	3E-07	Immune System	- -	3E-03	- -	3E-03
			Carbon tetrachloride	- -	2E-09	- -	- -	2E-09	Liver	- -	2E-06	- -	2E-06
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	5E-03	- -	5E-03
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	1E-05	- -	1E-05
			Ethylbenzene	- -	7E-08	- -	- -	7E-08	Developmental	- -	8E-05	- -	8E-05
			Methylene chloride	- -	1E-10	- -	- -	1E-10	Liver	- -	5E-07	- -	5E-07
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	2E-05	- -	2E-05
			Trichloroethene	- -	2E-09	- -	- -	2E-09	CNS	- -	3E-04	- -	3E-04
			Vinyl Chloride	- -	2E-08	- -	- -	2E-08	Liver	- -	1E-04	- -	1E-04
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	4E-04	- -	4E-04
			Chemical Total	- -	5E-07	- -	- -	5E-07		- -	1E-02	- -	1E-02
			Radionuclide Total										
		Exposure Point Total						5E-07					1E-02
	Exposure Medium Total							5E-07					1E-02
Medium Total								5E-07					1E-02
Receptor Total								5E-07					1E-02

TABLE 9.10.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 5E-07

Total Hazard Across All Media: 1E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-05
Total GI System HI =	N/A
Total Immune System HI =	3E-03
Total Kidney HI =	5E-03
Total Liver HI =	5E-03
Total CNS HI =	1E-03
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	2E-04
Total Developmental HI =	8E-05
Total Endocrine HI =	N/A

TABLE 9.10.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	8E-11	- -	- -	8E-11	Kidney	- -	8E-07	- -	8E-07
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	7E-04	- -	7E-04
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	2E-05	- -	2E-05
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	2E-04	- -	2E-04
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	4E-08	- -	- -	4E-08	Liver	- -	3E-05	- -	3E-05
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	7E-08	- -	- -	7E-08	Immune System	- -	2E-03	- -	2E-03
			Carbon tetrachloride	- -	4E-10	- -	- -	4E-10	Liver	- -	1E-06	- -	1E-06
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	3E-03	- -	3E-03
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	8E-06	- -	8E-06
			Ethylbenzene	- -	2E-08	- -	- -	2E-08	Developmental	- -	5E-05	- -	5E-05
			Methylene chloride	- -	2E-11	- -	- -	2E-11	Liver	- -	4E-07	- -	4E-07
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	2E-05	- -	2E-05
			Trichloroethene	- -	6E-10	- -	- -	6E-10	CNS	- -	2E-04	- -	2E-04
			Vinyl Chloride	- -	5E-09	- -	- -	5E-09	Liver	- -	8E-05	- -	8E-05
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	3E-04	- -	3E-04
			Chemical Total	- -	1E-07	- -	- -	1E-07		- -	7E-03	- -	7E-03
			Radionuclide Total										
		Exposure Point Total						1E-07					7E-03
	Exposure Medium Total							1E-07					7E-03
Medium Total								1E-07					7E-03
Receptor Total								1E-07					7E-03

TABLE 9.10.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 1E-07

Total Hazard Across All Media: 7E-03

Total Blood HI =	9E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-05
Total GI System HI =	N/A
Total Immune System HI =	2E-03
Total Kidney HI =	3E-03
Total Liver HI =	3E-03
Total CNS HI =	7E-04
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	2E-04
Total Developmental HI =	5E-05
Total Endocrine HI =	N/A

TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	1E-04	- -	- -	1E-04
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	1E-03	- -	- -	1E-03
			Benzo(a)anthracene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			Isophorone	3E-08	- -	- -	- -	3E-08	Kidney	6E-04	- -	- -	6E-04
			Total PCB Homologs	1E-04	- -	- -	- -	1E-04	General Toxicity/Immune System	1E+01	- -	- -	1E+01
			4,4'-DDD	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDE	6E-07	- -	- -	- -	6E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	7E-08	- -	- -	- -	7E-08	Liver	2E-03	- -	- -	2E-03
			Aldrin	2E-06	- -	- -	- -	2E-06	Liver	1E-02	- -	- -	1E-02
			alpha-Chlordane	2E-07	- -	- -	- -	2E-07	Liver	6E-03	- -	- -	6E-03
			Dieldrin	2E-05	- -	- -	- -	2E-05	Liver	1E-01	- -	- -	1E-01
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	7E-05	- -	- -	7E-05
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	2E-05	- -	- -	2E-05
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	3E-04	- -	- -	3E-04
			Gamma-Chlordane	1E-07	- -	- -	- -	1E-07	Liver	3E-03	- -	- -	3E-03
			Heptachlor	1E-06	- -	- -	- -	1E-06	Liver	2E-03	- -	- -	2E-03
			Heptachlor Epoxide	4E-07	- -	- -	- -	4E-07	Liver	1E-02	- -	- -	1E-02
			Arsenic	6E-06	- -	- -	- -	6E-06	Skin	5E-02	- -	- -	5E-02
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	8E-03	- -	- -	8E-03
			Chromium	N/A	- -	- -	- -	N/A	GI System	4E-01	- -	- -	4E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	4E-02	- -	- -	4E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	2E-02	- -	- -	2E-02
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	4E-01	- -	- -	4E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	3E-02	- -	- -	3E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	4E-02	- -	- -	4E-02
			Chemical Total	2E-04	- -	- -	- -	2E-04		1E+01	- -	- -	1E+01
			Radionuclide Total										
		Exposure Point Total						2E-04					1E+01

TABLE 9.11.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							2E-04					1E+01
Medium Total								2E-04					1E+01
Receptor Total								2E-04					1E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 2E-04

Total Hazard Across All Media: 1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	4E-01
Total Immune System HI =	1E+01
Total Kidney HI =	1E-02
Total Liver HI =	2E-01
Total CNS HI =	4E-01
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	4E-02

TABLE 9.11.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	5E-05	- -	- -	5E-05
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	7E-04	- -	- -	7E-04
			Benzo(a)anthracene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dibenz(a,h)anthracene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Indeno(1,2,3-cd)pyrene	4E-07	- -	- -	- -	4E-07	N/A	N/A	- -	- -	N/A
			Isophorone	6E-09	- -	- -	- -	6E-09	Kidney	4E-04	- -	- -	4E-04
			Total PCB Homologs	2E-05	- -	- -	- -	2E-05	General Toxicity/Immune System	7E+00	- -	- -	7E+00
			4,4'-DDD	5E-08	- -	- -	- -	5E-08	N/A	N/A	- -	- -	N/A
			4,4'-DDE	1E-07	- -	- -	- -	1E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	1E-08	- -	- -	- -	1E-08	Liver	9E-04	- -	- -	9E-04
			Aldrin	6E-08	- -	- -	- -	6E-08	Liver	1E-03	- -	- -	1E-03
			alpha-Chlordane	5E-08	- -	- -	- -	5E-08	Liver	3E-03	- -	- -	3E-03
			Dieldrin	4E-06	- -	- -	- -	4E-06	Liver	7E-02	- -	- -	7E-02
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	4E-05	- -	- -	4E-05
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	1E-05	- -	- -	1E-05
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	2E-04	- -	- -	2E-04
			Gamma-Chlordane	3E-08	- -	- -	- -	3E-08	Liver	2E-03	- -	- -	2E-03
			Heptachlor	2E-08	- -	- -	- -	2E-08	Liver	1E-04	- -	- -	1E-04
			Heptachlor Epoxide	7E-08	- -	- -	- -	7E-08	Liver	8E-03	- -	- -	8E-03
			Arsenic	1E-06	- -	- -	- -	1E-06	Skin	3E-02	- -	- -	3E-02
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	5E-03	- -	- -	5E-03
			Chromium	N/A	- -	- -	- -	N/A	GI System	2E-01	- -	- -	2E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	2E-02	- -	- -	2E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	1E-02	- -	- -	1E-02
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	2E-01	- -	- -	2E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	2E-02	- -	- -	2E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	2E-02	- -	- -	2E-02
			Chemical Total	4E-05	- -	- -	- -	4E-05		8E+00	- -	- -	8E+00
			Radionuclide Total										
		Exposure Point Total						4E-05					8E+00

TABLE 9.11.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							4E-05					8E+00
Medium Total								4E-05					8E+00
Receptor Total								4E-05					8E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 4E-05

Total Hazard Across All Media: 8E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	2E-01
Total Immune System HI =	7E+00
Total Kidney HI =	6E-03
Total Liver HI =	1E-01
Total CNS HI =	2E-01
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	4E-04	- -	- -	4E-04
			Benzo(a)anthracene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	2E-07	- -	- -	- -	2E-07	Liver	3E-03	- -	- -	3E-03
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			Isophorone	1E-08	- -	- -	- -	1E-08	Kidney	3E-04	- -	- -	3E-04
			Total PCB Homologs	1E-04	- -	- -	- -	1E-04	General Toxicity/Immune System	9E+00	- -	- -	9E+00
			4,4'-DDD	1E-07	- -	- -	- -	1E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDE	7E-07	- -	- -	- -	7E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	3E-07	- -	- -	- -	3E-07	Liver	7E-03	- -	- -	7E-03
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	2E-07	- -	- -	- -	2E-07	Liver	4E-03	- -	- -	4E-03
			Dieldrin	2E-05	- -	- -	- -	2E-05	Liver	8E-02	- -	- -	8E-02
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	2E-04	- -	- -	2E-04
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	3E-05	- -	- -	3E-05
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	2E-04	- -	- -	2E-04
			Gamma-Chlordane	1E-07	- -	- -	- -	1E-07	Liver	3E-03	- -	- -	3E-03
			Heptachlor	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor Epoxide	2E-06	- -	- -	- -	2E-06	Liver	6E-02	- -	- -	6E-02
			Arsenic	1E-05	- -	- -	- -	1E-05	Skin	1E-01	- -	- -	1E-01
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	1E-02	- -	- -	1E-02
			Chromium	N/A	- -	- -	- -	N/A	GI System	3E-01	- -	- -	3E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	2E-02	- -	- -	2E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	1E-02	- -	- -	1E-02
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	5E-01	- -	- -	5E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	2E-02	- -	- -	2E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	5E-02	- -	- -	5E-02
			Chemical Total	2E-04	- -	- -	- -	2E-04		1E+01	- -	- -	1E+01
			Radionuclide Total										
		Exposure Point Total						2E-04					1E+01

TABLE 9.12.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							2E-04					1E+01
Medium Total								2E-04					1E+01
Receptor Total								2E-04					1E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 2E-04

Total Hazard Across All Media: 1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E+00
Total GI System HI =	3E-01
Total Immune System HI =	9E+00
Total Kidney HI =	1E-02
Total Liver HI =	2E-01
Total CNS HI =	5E-01
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.12.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	3E-04	- -	- -	3E-04
			Benzo(a)anthracene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	4E-08	- -	- -	- -	4E-08	Liver	2E-03	- -	- -	2E-03
			Dibenz(a,h)anthracene	4E-06	- -	- -	- -	4E-06	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Indeno(1,2,3-cd)pyrene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			Isophorone	3E-09	- -	- -	- -	3E-09	Kidney	2E-04	- -	- -	2E-04
			Total PCB Homologs	2E-05	- -	- -	- -	2E-05	General Toxicity/Immune System	6E+00	- -	- -	6E+00
			4,4'-DDD	3E-08	- -	- -	- -	3E-08	N/A	N/A	- -	- -	N/A
			4,4'-DDE	1E-07	- -	- -	- -	1E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	6E-08	- -	- -	- -	6E-08	Liver	4E-03	- -	- -	4E-03
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	3E-08	- -	- -	- -	3E-08	Liver	2E-03	- -	- -	2E-03
			Dieldrin	3E-06	- -	- -	- -	3E-06	Liver	5E-02	- -	- -	5E-02
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	1E-04	- -	- -	1E-04
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	7E-06	- -	- -	7E-06
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	1E-04	- -	- -	1E-04
			Gamma-Chlordane	2E-08	- -	- -	- -	2E-08	Liver	2E-03	- -	- -	2E-03
			Heptachlor	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor Epoxide	3E-07	- -	- -	- -	3E-07	Liver	4E-02	- -	- -	4E-02
			Arsenic	3E-06	- -	- -	- -	3E-06	Skin	7E-02	- -	- -	7E-02
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	6E-03	- -	- -	6E-03
			Chromium	N/A	- -	- -	- -	N/A	GI System	2E-01	- -	- -	2E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	1E-02	- -	- -	1E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	7E-03	- -	- -	7E-03
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	3E-01	- -	- -	3E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	1E-02	- -	- -	1E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	3E-02	- -	- -	3E-02
			Chemical Total	3E-05	- -	- -	- -	3E-05		6E+00	- -	- -	6E+00
			Radionuclide Total										
		Exposure Point Total						3E-05					6E+00

TABLE 9.12.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							3E-05					6E+00
Medium Total								3E-05					6E+00
Receptor Total								3E-05					6E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 6E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E+00
Total GI System HI =	2E-01
Total Immune System HI =	6E+00
Total Kidney HI =	7E-03
Total Liver HI =	1E-01
Total CNS HI =	3E-01
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	1E-02

TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Benzo(a)anthracene	5E-06	- -	- -	- -	5E-06	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	5E-05	- -	- -	- -	5E-05	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	4E-07	- -	- -	- -	4E-07	Liver	5E-03	- -	- -	5E-03
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	1E-06	- -	- -	- -	1E-06	Liver	4E-03	- -	- -	4E-03
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			Isophorone	3E-08	- -	- -	- -	3E-08	Kidney	7E-04	- -	- -	7E-04
			Total PCB Homologs	2E-04	- -	- -	- -	2E-04	General Toxicity/Immune System	2E+01	- -	- -	2E+01
			4,4'-DDD	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDE	1E-06	- -	- -	- -	1E-06	N/A	N/A	- -	- -	N/A
			4,4'-DDT	1E-07	- -	- -	- -	1E-07	Liver	2E-03	- -	- -	2E-03
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	2E-07	- -	- -	- -	2E-07	Liver	6E-03	- -	- -	6E-03
			Dieldrin	3E-05	- -	- -	- -	3E-05	Liver	1E-01	- -	- -	1E-01
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	3E-05	- -	- -	3E-05
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	7E-04	- -	- -	7E-04
			Gamma-Chlordane	2E-07	- -	- -	- -	2E-07	Liver	5E-03	- -	- -	5E-03
			Heptachlor	5E-07	- -	- -	- -	5E-07	Liver	8E-04	- -	- -	8E-04
			Heptachlor Epoxide	4E-07	- -	- -	- -	4E-07	Liver	1E-02	- -	- -	1E-02
			Arsenic	1E-05	- -	- -	- -	1E-05	Skin	9E-02	- -	- -	9E-02
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	5E-03	- -	- -	5E-03
			Chromium	N/A	- -	- -	- -	N/A	GI System	4E-01	- -	- -	4E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	3E-02	- -	- -	3E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	1E-02	- -	- -	1E-02
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	5E-01	- -	- -	5E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	3E-02	- -	- -	3E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	5E-02	- -	- -	5E-02
			Chemical Total	3E-04	- -	- -	- -	3E-04		2E+01	- -	- -	2E+01
			Radionuclide Total										
		Exposure Point Total						3E-04					2E+01

TABLE 9.13.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							3E-04					2E+01
Medium Total								3E-04					2E+01
Receptor Total								3E-04					2E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 3E-04

Total Hazard Across All Media: 2E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+01
Total GI System HI =	4E-01
Total Immune System HI =	2E+01
Total Kidney HI =	7E-03
Total Liver HI =	2E-01
Total CNS HI =	5E-01
Total Skin HI =	9E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	3E-02

TABLE 9.13.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Benzo(a)anthracene	1E-06	- -	- -	- -	1E-06	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	1E-05	- -	- -	- -	1E-05	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	7E-08	- -	- -	- -	7E-08	Liver	3E-03	- -	- -	3E-03
			Dibenz(a,h)anthracene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	1E-07	- -	- -	- -	1E-07	Liver	1E-03	- -	- -	1E-03
			Indeno(1,2,3-cd)pyrene	4E-07	- -	- -	- -	4E-07	N/A	N/A	- -	- -	N/A
			Isophorone	6E-09	- -	- -	- -	6E-09	Kidney	4E-04	- -	- -	4E-04
			Total PCB Homologs	4E-05	- -	- -	- -	4E-05	General Toxicity/Immune System	1E+01	- -	- -	1E+01
			4,4'-DDD	6E-08	- -	- -	- -	6E-08	N/A	N/A	- -	- -	N/A
			4,4'-DDE	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	2E-08	- -	- -	- -	2E-08	Liver	1E-03	- -	- -	1E-03
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	5E-08	- -	- -	- -	5E-08	Liver	3E-03	- -	- -	3E-03
			Dieldrin	5E-06	- -	- -	- -	5E-06	Liver	8E-02	- -	- -	8E-02
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	7E-06	- -	- -	7E-06
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	4E-04	- -	- -	4E-04
			Gamma-Chlordane	4E-08	- -	- -	- -	4E-08	Liver	3E-03	- -	- -	3E-03
			Heptachlor	2E-08	- -	- -	- -	2E-08	Liver	1E-04	- -	- -	1E-04
			Heptachlor Epoxide	8E-08	- -	- -	- -	8E-08	Liver	9E-03	- -	- -	9E-03
			Arsenic	2E-06	- -	- -	- -	2E-06	Skin	6E-02	- -	- -	6E-02
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	3E-03	- -	- -	3E-03
			Chromium	N/A	- -	- -	- -	N/A	GI System	2E-01	- -	- -	2E-01
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	2E-02	- -	- -	2E-02
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	7E-03	- -	- -	7E-03
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	3E-01	- -	- -	3E-01
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	2E-02	- -	- -	2E-02
			Selenium	N/A	- -	- -	- -	N/A	Liver	3E-02	- -	- -	3E-02
			Chemical Total	6E-05	- -	- -	- -	6E-05		1E+01	- -	- -	1E+01
			Radionuclide Total										
		Exposure Point Total						6E-05					1E+01

TABLE 9.13.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							6E-05					1E+01
Medium Total								6E-05					1E+01
Receptor Total								6E-05					1E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 6E-05

Total Hazard Across All Media: 1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	2E-01
Total Immune System HI =	1E+01
Total Kidney HI =	4E-03
Total Liver HI =	1E-01
Total CNS HI =	3E-01
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	6E-04	- -	- -	6E-04
			Benzo(a)anthracene	1E-06	- -	- -	- -	1E-06	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	1E-05	- -	- -	- -	1E-05	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	1E-06	- -	- -	- -	1E-06	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	1E-06	- -	- -	- -	1E-06	Liver	3E-03	- -	- -	3E-03
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06	N/A	N/A	- -	- -	N/A
			Isophorone	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Total PCB Homologs	2E-05	- -	- -	- -	2E-05	General Toxicity/Immune System	2E+00	- -	- -	2E+00
			4,4'-DDD	2E-08	- -	- -	- -	2E-08	N/A	N/A	- -	- -	N/A
			4,4'-DDE	1E-07	- -	- -	- -	1E-07	N/A	N/A	- -	- -	N/A
			4,4'-DDT	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dieldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	7E-05	- -	- -	7E-05
			Gamma-Chlordane	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor Epoxide	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Arsenic	N/A	- -	- -	- -	N/A	Skin	N/A	- -	- -	N/A
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Chromium	N/A	- -	- -	- -	N/A	GI System	7E-02	- -	- -	7E-02
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	9E-03	- -	- -	9E-03
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	5E-03	- -	- -	5E-03
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	2E+00	- -	- -	2E+00
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	5E-03	- -	- -	5E-03
			Selenium	N/A	- -	- -	- -	N/A	Liver	2E-02	- -	- -	2E-02
			Chemical Total	5E-05	- -	- -	- -	5E-05		4E+00	- -	- -	4E+00
			Radionuclide Total										
		Exposure Point Total						5E-05					4E+00

TABLE 9.14.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							5E-05					4E+00
Medium Total								5E-05					4E+00
Receptor Total								5E-05					4E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 5E-05

Total Hazard Across All Media: 4E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+00
Total GI System HI =	8E-02
Total Immune System HI =	2E+00
Total Kidney HI =	7E-04
Total Liver HI =	3E-02
Total CNS HI =	2E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	9E-03

TABLE 9.14.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6											
			4-Chloro-3-methylphenol	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			4-Nitrophenol	N/A	- -	- -	- -	N/A	N/A	N/A	- -	- -	N/A
			Benzaldehyde	N/A	- -	- -	- -	N/A	Kidney	4E-04	- -	- -	4E-04
			Benzo(a)anthracene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			Benzo(a)pyrene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Benzo(b)fluoranthene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dibenz(a,h)anthracene	3E-06	- -	- -	- -	3E-06	N/A	N/A	- -	- -	N/A
			Hexachlorobenzene	2E-07	- -	- -	- -	2E-07	Liver	2E-03	- -	- -	2E-03
			Indeno(1,2,3-cd)pyrene	3E-07	- -	- -	- -	3E-07	N/A	N/A	- -	- -	N/A
			Isophorone	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Total PCB Homologs	3E-06	- -	- -	- -	3E-06	General Toxicity/Immune System	1E+00	- -	- -	1E+00
			4,4'-DDD	3E-09	- -	- -	- -	3E-09	N/A	N/A	- -	- -	N/A
			4,4'-DDE	2E-08	- -	- -	- -	2E-08	N/A	N/A	- -	- -	N/A
			4,4'-DDT	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Aldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			alpha-Chlordane	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Dieldrin	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Endosulfan I	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan II	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	N/A	- -	- -	N/A
			Endosulfan Sulfate	N/A	- -	- -	- -	N/A	General Toxicity/Kidney	5E-05	- -	- -	5E-05
			Gamma-Chlordane	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Heptachlor Epoxide	N/A	- -	- -	- -	N/A	Liver	N/A	- -	- -	N/A
			Arsenic	N/A	- -	- -	- -	N/A	Skin	N/A	- -	- -	N/A
			Cadmium (other media)	N/A	- -	- -	- -	N/A	Kidney	N/A	- -	- -	N/A
			Chromium	N/A	- -	- -	- -	N/A	GI System	4E-02	- -	- -	4E-02
			Cobalt	N/A	- -	- -	- -	N/A	Endocrine	5E-03	- -	- -	5E-03
			Iron	N/A	- -	- -	- -	N/A	Liver/GI System	3E-03	- -	- -	3E-03
			Lead	N/A	- -	- -	- -	N/A	CNS	N/A	- -	- -	N/A
			Mercury (other media)	N/A	- -	- -	- -	N/A	CNS	1E+00	- -	- -	1E+00
			Nickel	N/A	- -	- -	- -	N/A	General Toxicity	3E-03	- -	- -	3E-03
			Selenium	N/A	- -	- -	- -	N/A	Liver	1E-02	- -	- -	1E-02
			Chemical Total	1E-05	- -	- -	- -	1E-05		2E+00	- -	- -	2E+00
			Radionuclide Total										
		Exposure Point Total						1E-05					2E+00

TABLE 9.14.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							1E-05					2E+00
Medium Total								1E-05					2E+00
Receptor Total								1E-05					2E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 2E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+00
Total GI System HI =	5E-02
Total Immune System HI =	1E+00
Total Kidney HI =	4E-04
Total Liver HI =	2E-02
Total CNS HI =	1E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	5E-03

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells											
			1,4-Dioxane	1E-05	N/A	N/A	- -	1E-05	Liver	5E-02	N/A	N/A	5E-02
			2,4-Dimethylphenol	N/A	N/A	N/A	- -	N/A	Blood/CNS	4E-02	N/A	N/A	4E-02
			2-Chlorophenol	N/A	N/A	N/A	- -	N/A	Reproductive	7E-03	N/A	N/A	7E-03
			4-Chloroaniline	5E-06	N/A	N/A	- -	5E-06	Spleen	3E-02	N/A	N/A	3E-02
			Atrazine	1E-05	N/A	9E-07	- -	1E-05	General Toxicity/Cardiovascular	9E-03	N/A	N/A	9E-03
			Benzaldehyde	N/A	N/A	N/A	- -	N/A	Kidney	1E-03	N/A	N/A	1E-03
			Benzo(a)anthracene	1E-05	N/A	N/A	- -	1E-05	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-04	N/A	N/A	- -	1E-04	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	1E-05	N/A	N/A	- -	1E-05	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	- -	N/A	Kidney	5E-04	N/A	N/A	5E-04
			bis(2-Ethylhexyl)phthalate	1E-05	N/A	2E-05	- -	3E-05	Liver	2E-01	N/A	2E-01	5E-01
			Carbazole	2E-07	N/A	1E-07	- -	3E-07	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	7E-02	N/A	8E-02	1E-01
			Indeno(1,2,3-cd)pyrene	5E-06	N/A	N/A	- -	5E-06	N/A	N/A	N/A	N/A	N/A
			Naphthalene	N/A	1E-04	N/A	- -	1E-04	General Toxicity	7E-02	2E+00	3E-02	2E+00
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	2E-02	9E-01	N/A	1E+00
			1,2,4-Trichlorobenzene	2E-08	N/A	2E-08	- -	3E-08	Endocrine	2E-03	3E-02	2E-03	3E-02
			1,2-Dichlorobenzene	N/A	N/A	N/A	- -	N/A	Liver	5E-03	1E-02	2E-03	2E-02
			1,3-Dichlorobenzene	N/A	N/A	N/A	- -	N/A	Endocrine	3E-03	N/A	2E-03	5E-03
			1,4-Dichlorobenzene	8E-07	2E-05	4E-07	- -	2E-05	Liver	1E-02	5E-03	5E-03	2E-02
			2-Butanone	N/A	N/A	N/A	- -	N/A	Developmental	2E-04	1E-04	N/A	3E-04
			Benzene	1E-03	2E-03	9E-05	- -	3E-03	Immune System	3E+01	2E+01	N/A	4E+01
			Bromodichloromethane	3E-07	N/A	N/A	- -	3E-07	Kidney	2E-03	N/A	N/A	2E-03
			Chlorobenzene	N/A	N/A	N/A	- -	N/A	Liver/Kidney	4E-01	9E-01	1E-01	1E+00
			Chloroethane	N/A	N/A	N/A	- -	N/A	CNS/Liver	2E-03	1E-04	N/A	2E-03
			Chloroform	2E-06	2E-05	N/A	- -	2E-05	Liver	4E-02	2E-02	N/A	6E-02
			Ethylbenzene	3E-06	9E-06	2E-06	- -	1E-05	Liver/Kidney	2E-02	8E-03	6E-03	3E-02
			Isopropylbenzene	N/A	N/A	N/A	- -	N/A	Kidney	2E-01	2E-01	9E-02	4E-01
			Methyl tert-butyl ether	7E-07	1E-06	N/A	- -	2E-06	Liver	7E-03	3E-03	N/A	1E-02
			Tetrachloroethene	2E-05	3E-06	1E-05	- -	4E-05	Liver	2E-02	4E-03	9E-03	4E-02
			Toluene	N/A	N/A	N/A	- -	N/A	Kidney	6E-03	5E-04	1E-03	8E-03
			Trichloroethene	9E-07	2E-06	8E-08	- -	3E-06	N/A	N/A	2E-01	N/A	2E-01
			Vinyl Chloride	1E-04	1E-06	N/A	- -	1E-04	Liver	4E-02	6E-03	N/A	4E-02
			Xylene (Total)	N/A	N/A	N/A	- -	N/A	General Toxicity	2E-02	2E-01	1E-02	3E-01
			Aroclor-1242	1E-05	N/A	N/A	- -	1E-05	General Toxicity/Immune System	2E+00	N/A	N/A	2E+00
			Aroclor-1248	6E-06	N/A	N/A	- -	6E-06	General Toxicity/Immune System	9E-01	N/A	N/A	9E-01
			Aroclor-1254	2E-05	N/A	N/A	- -	2E-05	General Toxicity/Immune System	3E+00	N/A	N/A	3E+00
			4,4'-DDD	3E-08	N/A	N/A	- -	3E-08	N/A	N/A	N/A	N/A	N/A
			4,4'-DDE	3E-08	N/A	N/A	- -	3E-08	N/A	N/A	N/A	N/A	N/A

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			4,4'-DDT	2E-08	N/A	N/A	- -	2E-08	Liver	7E-04	N/A	N/A	7E-04
			Aldrin	2E-06	N/A	N/A	- -	2E-06	Liver	2E-02	N/A	N/A	2E-02
			alpha-BHC	4E-07	N/A	2E-07	- -	5E-07	Liver	4E-05	N/A	1E-05	6E-05
			Dieldrin	2E-06	N/A	1E-06	- -	4E-06	Liver	2E-02	N/A	7E-03	2E-02
			Endosulfan Sulfate	N/A	N/A	N/A	- -	N/A	General Toxicity/Kidney	1E-04	N/A	N/A	1E-04
			Gamma-BHC (Lindane)	3E-07	N/A	1E-07	- -	4E-07	Liver/Kidney	5E-03	N/A	1E-03	6E-03
			Heptachlor	4E-07	N/A	1E-07	- -	5E-07	Liver	9E-04	N/A	3E-04	1E-03
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	1E+00	N/A	6E-01	2E+00
			Arsenic	3E-03	N/A	N/A	- -	3E-03	Skin	4E+01	N/A	N/A	4E+01
			Cadmium (drinking water)	N/A	N/A	N/A	- -	N/A	Kidney	5E+00	N/A	5E-01	6E+00
			Chromium	N/A	N/A	N/A	- -	N/A	GI System	4E-01	N/A	2E-01	6E-01
			Cobalt	N/A	N/A	N/A	- -	N/A	Endocrine	1E+01	N/A	N/A	1E+01
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	1E+01	N/A	N/A	1E+01
			Lead	N/A	N/A	N/A	- -	N/A	CNS	N/A	N/A	N/A	N/A
			Manganese (drinking water)	N/A	N/A	N/A	- -	N/A	CNS	2E+01	N/A	N/A	2E+01
			Nickel	N/A	N/A	N/A	- -	N/A	General Toxicity	4E-01	N/A	N/A	4E-01
			Silver	N/A	N/A	N/A	- -	N/A	Skin	3E-01	N/A	N/A	3E-01
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	1E+01	N/A	N/A	1E+01
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	1E+00	N/A	N/A	1E+00
			Chemical Total	5E-03	2E-03	1E-04	- -	7E-03		1E+02	2E+01	2E+00	2E+02
			Radionuclide Total										
		Exposure Point Total						7E-03					2E+02
	Exposure Medium Total							7E-03					2E+02
Medium Total								7E-03					2E+02
Receptor Total								7E-03					2E+02

TABLE 9.15.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 7E-03

Total Hazard Across All Media: 2E+02

Total Blood HI =	1E+01
Total Cardiovascular HI =	9E-03
Total Reproductive HI =	7E-03
Total General Toxicity HI =	8E+00
Total GI System HI =	1E+01
Total Immune System HI =	5E+01
Total Kidney HI =	9E+00
Total Liver HI =	1E+01
Total CNS HI =	2E+01
Total Skin HI =	4E+01
Total Spleen HI =	3E-02
Total Respiratory HI =	N/A
Total Developmental HI =	2E+00
Total Endocrine HI =	1E+01

TABLE 9.15.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells											
			1,4-Dioxane	2E-07	N/A	N/A	- -	2E-07	Liver	3E-03	N/A	N/A	3E-03
			2,4-Dimethylphenol	N/A	N/A	N/A	- -	N/A	Blood/CNS	6E-03	N/A	N/A	6E-03
			2-Chlorophenol	N/A	N/A	N/A	- -	N/A	Reproductive	4E-03	N/A	N/A	4E-03
			4-Chloroaniline	1E-06	N/A	N/A	- -	1E-06	Spleen	2E-02	N/A	N/A	2E-02
			Atrazine	1E-06	N/A	N/A	- -	1E-06	General Toxicity/Cardiovascular	3E-03	N/A	N/A	3E-03
			Benzaldehyde	N/A	N/A	N/A	- -	N/A	Kidney	6E-04	N/A	N/A	6E-04
			Benzo(a)anthracene	3E-07	N/A	N/A	- -	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	3E-06	N/A	N/A	- -	3E-06	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	3E-07	N/A	N/A	- -	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	- -	N/A	Kidney	3E-04	N/A	N/A	3E-04
			bis(2-Ethylhexyl)phthalate	1E-07	N/A	1E-07	- -	3E-07	Liver	7E-03	N/A	6E-03	1E-02
			Carbazole	2E-08	N/A	1E-08	- -	3E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	3E-02	N/A	3E-02	6E-02
			Indeno(1,2,3-cd)pyrene	3E-07	N/A	N/A	- -	3E-07	N/A	N/A	N/A	N/A	N/A
			Naphthalene	N/A	5E-07	N/A	- -	5E-07	General Toxicity	6E-04	3E-02	3E-04	4E-02
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	2E-04	2E-02	N/A	2E-02
			1,2,4-Trichlorobenzene	3E-09	N/A	3E-09	- -	6E-09	Endocrine	1E-03	3E-02	1E-03	3E-02
			1,2-Dichlorobenzene	N/A	N/A	N/A	- -	N/A	Liver	2E-04	1E-03	1E-04	1E-03
			1,3-Dichlorobenzene	N/A	N/A	N/A	- -	N/A	Endocrine	8E-04	N/A	4E-04	1E-03
			1,4-Dichlorobenzene	2E-08	6E-07	9E-09	- -	7E-07	Liver	7E-04	6E-04	3E-04	2E-03
			2-Butanone	N/A	N/A	N/A	- -	N/A	Developmental	1E-04	1E-04	N/A	2E-04
			Benzene	4E-06	1E-05	N/A	- -	1E-05	Immune System	3E-01	4E-01	N/A	7E-01
			Bromodichloromethane	6E-08	N/A	N/A	- -	6E-08	Kidney	8E-04	N/A	N/A	8E-04
			Chlorobenzene	N/A	N/A	N/A	- -	N/A	Liver/Kidney	2E-02	5E-02	N/A	7E-02
			Chloroethane	N/A	N/A	N/A	- -	N/A	CNS/Liver	2E-04	2E-05	N/A	2E-04
			Chloroform	5E-08	7E-07	N/A	- -	7E-07	Liver	3E-03	2E-03	N/A	5E-03
			Ethylbenzene	2E-08	7E-08	8E-09	- -	9E-08	Liver/Kidney	2E-04	2E-04	9E-05	6E-04
			Isopropylbenzene	N/A	N/A	N/A	- -	N/A	Kidney	2E-03	4E-03	1E-03	7E-03
			Methyl tert-butyl ether	3E-09	9E-09	N/A	- -	1E-08	Liver	1E-04	9E-05	N/A	2E-04
			Tetrachloroethene	6E-07	1E-07	3E-07	- -	1E-06	Liver	2E-03	5E-04	6E-04	3E-03
			Toluene	N/A	N/A	N/A	- -	N/A	Kidney	2E-04	3E-05	N/A	3E-04
			Trichloroethene	2E-08	4E-08	1E-09	- -	6E-08	N/A	N/A	2E-02	N/A	2E-02
			Vinyl Chloride	1E-05	1E-07	N/A	- -	1E-05	Liver	5E-03	1E-03	N/A	7E-03
			Xylene (Total)	N/A	N/A	N/A	- -	N/A	General Toxicity	5E-04	9E-03	2E-04	1E-02
			Aroclor-1242	2E-07	N/A	N/A	- -	2E-07	General Toxicity/Immune System	1E-01	N/A	N/A	1E-01
			Aroclor-1248	2E-07	N/A	N/A	- -	2E-07	General Toxicity/Immune System	1E-01	N/A	N/A	1E-01
			Aroclor-1254	2E-07	N/A	N/A	- -	2E-07	General Toxicity/Immune System	2E-01	N/A	N/A	2E-01
			4,4'-DDD	2E-09	N/A	N/A	- -	2E-09	N/A	N/A	N/A	N/A	N/A
			4,4'-DDE	3E-09	N/A	N/A	- -	3E-09	N/A	N/A	N/A	N/A	N/A

TABLE 9.15.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			4,4'-DDT	3E-09	N/A	N/A	- -	3E-09	Liver	3E-04	N/A	N/A	3E-04
			Aldrin	1E-07	N/A	N/A	- -	1E-07	Liver	3E-03	N/A	N/A	3E-03
			alpha-BHC	4E-08	N/A	2E-08	- -	5E-08	Liver	1E-05	N/A	4E-06	2E-05
			Dieldrin	2E-07	N/A	9E-08	- -	2E-07	Liver	3E-03	N/A	1E-03	4E-03
			Endosulfan Sulfate	N/A	N/A	N/A	- -	N/A	General Toxicity/Kidney	2E-05	N/A	N/A	2E-05
			Gamma-BHC (Lindane)	8E-09	N/A	2E-09	- -	1E-08	Liver/Kidney	4E-04	N/A	9E-05	5E-04
			Heptachlor	3E-08	N/A	1E-08	- -	4E-08	Liver	2E-04	N/A	6E-05	3E-04
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	2E-02	N/A	4E-03	2E-02
			Arsenic	8E-05	N/A	N/A	- -	8E-05	Skin	3E+00	N/A	N/A	3E+00
			Cadmium (drinking water)	N/A	N/A	N/A	- -	N/A	Kidney	1E-01	N/A	6E-03	1E-01
			Chromium	N/A	N/A	N/A	- -	N/A	GI System	3E-02	N/A	5E-03	3E-02
			Cobalt	N/A	N/A	N/A	- -	N/A	Endocrine	3E+00	N/A	N/A	3E+00
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	1E+00	N/A	N/A	1E+00
			Lead	N/A	N/A	N/A	- -	N/A	CNS	N/A	N/A	N/A	N/A
			Manganese (drinking water)	N/A	N/A	N/A	- -	N/A	CNS	2E+00	N/A	N/A	2E+00
			Nickel	N/A	N/A	N/A	- -	N/A	General Toxicity	4E-02	N/A	N/A	4E-02
			Silver	N/A	N/A	N/A	- -	N/A	Skin	3E-02	N/A	N/A	3E-02
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	1E+00	N/A	N/A	1E+00
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	2E-02	N/A	N/A	2E-02
			Chemical Total	1E-04	1E-05	6E-07	- -	1E-04		1E+01	5E-01	6E-02	1E+01
			Radionuclide Total										
		Exposure Point Total						1E-04					1E+01
	Exposure Medium Total							1E-04					1E+01
Medium Total								1E-04					1E+01
Receptor Total								1E-04					1E+01

TABLE 9.15.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 1E-04

Total Hazard Across All Media: 1E+01

Total Blood HI =	1E+00
Total Cardiovascular HI =	3E-03
Total Reproductive HI =	4E-03
Total General Toxicity HI =	5E-01
Total GI System HI =	1E+00
Total Immune System HI =	1E+00
Total Kidney HI =	3E-01
Total Liver HI =	1E+00
Total CNS HI =	2E+00
Total Skin HI =	3E+00
Total Spleen HI =	2E-02
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	3E+00

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	6E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	8E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-08	- -	2E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	- -	1E-08	- -	4E-08	Liver	4E-04	- -	3E-04	7E-04
			Carbazole	1E-09	- -	8E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-05	- -	7E-05	1E-04
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Dieldrin	2E-06	- -	9E-07	- -	3E-06	Liver	8E-03	- -	7E-03	2E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	4E-06	- -	7E-07	- -	5E-06	Skin	4E-02	- -	9E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-04	- -	N/A	8E-04
			Chemical Total	2E-05	- -	1E-05	- -	3E-05		2E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	3E-08	- -	3E-08	Liver	- -	- -	8E-05	8E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-03	1E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	2E-03	2E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	3E-08	- -	3E-08		- -	- -	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						3E-08					3E-03
	Exposure Medium Total							3E-08					3E-03
Medium Total								3E-08					3E-03
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	2E-07	- -	4E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	7E-09	- -	1E-08	Liver	5E-05	- -	7E-05	1E-04
			Carbazole	6E-10	- -	2E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	5E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	2E-03	- -	3E-03	4E-03
			Aroclor-1260	3E-08	- -	9E-08	- -	1E-07	General Toxicity/Immune System	3E-03	- -	6E-03	9E-03
			Dieldrin	2E-08	- -	4E-08	- -	6E-08	Liver	1E-04	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	5E-04	- -	N/A	5E-04
			Arsenic	8E-07	- -	4E-07	- -	1E-06	Skin	7E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	7E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Chemical Total	2E-06	- -	4E-06	- -	7E-06		4E-02	- -	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					5E-02
	Exposure Medium Total							7E-06					5E-02
Medium Total								7E-06					5E-02
Receptor Total								3E-05					3E-01

TABLE 9.16.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media	3E-05
Total Hazard Across All Media	3E-01
Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	7E-03

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	1E-09	- -	3E-09	Liver	2E-05	- -	3E-05	5E-05
			Carbazole	3E-10	- -	4E-10	- -	6E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	1E-08	- -	2E-08	- -	4E-08	General Toxicity/Immune System	3E-03	- -	8E-03	1E-02
			Dieldrin	1E-07	- -	1E-07	- -	2E-07	Liver	6E-04	- -	1E-03	2E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	7E-07	- -	2E-07	- -	9E-07	Skin	7E-03	- -	4E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	7E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-03	- -	N/A	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	8E-04	- -	N/A	8E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-04	- -	N/A	8E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	2E-06	- -	3E-06	- -	6E-06		3E-02	- -	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Surface Water	Surface Water	Southern Bank (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	4E-05	4E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	6E-04	6E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	8E-04	8E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						1E-08					1E-03
	Exposure Medium Total							1E-08					1E-03
Medium Total								1E-08					1E-03
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	3E-07	- -	1E-06	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-09	- -	6E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	- -	3E-09	- -	4E-09	Liver	1E-05	- -	3E-05	5E-05
			Carbazole	1E-10	- -	7E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	1E-05	1E-05
			Indeno(1,2,3-cd)pyrene	1E-08	- -	6E-08	- -	7E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	4E-04	- -	1E-03	2E-03
			Aroclor-1260	4E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	8E-04	- -	3E-03	4E-03
			Dieldrin	5E-09	- -	2E-08	- -	2E-08	Liver	3E-05	- -	7E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-04	- -	N/A	5E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	3E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	6E-07	- -	2E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								8E-06					6E-02

TABLE 9.16.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 8E-06

Total Hazard Across All Media: 6E-02

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	2E-02
Total Immune System HI =	2E-02
Total Kidney HI =	3E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	2E-03

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	6E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	8E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-08	- -	2E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	- -	1E-08	- -	4E-08	Liver	4E-04	- -	3E-04	7E-04
			Carbazole	1E-09	- -	8E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-05	- -	7E-05	1E-04
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Dieldrin	2E-06	- -	9E-07	- -	3E-06	Liver	8E-03	- -	7E-03	2E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	4E-06	- -	7E-07	- -	5E-06	Skin	4E-02	- -	9E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-04	- -	N/A	8E-04
			Chemical Total	2E-05	- -	1E-05	- -	3E-05		2E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank (swimming)											
			Benzo(a)anthracene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-08	- -	N/A	- -	7E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	6E-09	- -	N/A	- -	6E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	5E-11	- -	N/A	- -	5E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	5E-07	- -	N/A	5E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	1E-09	- -	4E-08	- -	4E-08	Liver	6E-06	- -	1E-04	1E-04
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	8E-03	- -	2E-03	1E-02
			Arsenic	8E-08	- -	N/A	- -	8E-08	Skin	7E-04	- -	N/A	7E-04
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	7E-04	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	2E-03	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-04	- -	N/A	3E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	3E-05	- -	N/A	3E-05
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-04	- -	N/A	4E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-04	- -	N/A	8E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	9E-04	- -	2E-04	1E-03
			Chemical Total	2E-07	- -	4E-08	- -	2E-07		2E-02	- -	5E-03	3E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					3E-02
	Exposure Medium Total							2E-07					3E-02
Medium Total								2E-07					3E-02
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	2E-07	- -	4E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	7E-09	- -	1E-08	Liver	5E-05	- -	7E-05	1E-04
			Carbazole	6E-10	- -	2E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	5E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	2E-03	- -	3E-03	4E-03
			Aroclor-1260	3E-08	- -	9E-08	- -	1E-07	General Toxicity/Immune System	3E-03	- -	6E-03	9E-03
			Dieldrin	2E-08	- -	4E-08	- -	6E-08	Liver	1E-04	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	5E-04	- -	N/A	5E-04
			Arsenic	8E-07	- -	4E-07	- -	1E-06	Skin	7E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	7E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Chemical Total	2E-06	- -	4E-06	- -	7E-06		4E-02	- -	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					5E-02
	Exposure Medium Total							7E-06					5E-02
Medium Total								7E-06					5E-02
Receptor Total								3E-05					3E-01

TABLE 9.17.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	9E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	8E-03

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	1E-09	- -	3E-09	Liver	2E-05	- -	3E-05	5E-05
			Carbazole	3E-10	- -	4E-10	- -	6E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	3E-05	4E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	1E-08	- -	2E-08	- -	4E-08	General Toxicity/Immune System	3E-03	- -	8E-03	1E-02
			Dieldrin	1E-07	- -	1E-07	- -	2E-07	Liver	6E-04	- -	1E-03	2E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	7E-07	- -	2E-07	- -	9E-07	Skin	7E-03	- -	4E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	7E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-03	- -	N/A	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	8E-04	- -	N/A	8E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-04	- -	N/A	8E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	2E-06	- -	3E-06	- -	6E-06		3E-02	- -	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Surface Water	Surface Water	Southern Bank (swimming)											
			Benzo(a)anthracene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-08	- -	N/A	- -	3E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-07	- -	N/A	2E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	5E-10	- -	2E-08	- -	2E-08	Liver	3E-06	- -	7E-05	7E-05
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	9E-04	5E-03
			Arsenic	4E-08	- -	N/A	- -	4E-08	Skin	4E-04	- -	N/A	4E-04
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	4E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	1E-03	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-04	- -	N/A	2E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	1E-05	- -	N/A	1E-05
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-04	- -	N/A	2E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	1E-04	6E-04
			Chemical Total	7E-08	- -	2E-08	- -	9E-08		1E-02	- -	3E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					1E-02
	Exposure Medium Total							9E-08					1E-02
Medium Total								9E-08					1E-02
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.17.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	3E-07	- -	1E-06	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-09	- -	6E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	- -	3E-09	- -	4E-09	Liver	1E-05	- -	3E-05	5E-05
			Carbazole	1E-10	- -	7E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	1E-05	1E-05
			Indeno(1,2,3-cd)pyrene	1E-08	- -	6E-08	- -	7E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	4E-04	- -	1E-03	2E-03
			Aroclor-1260	4E-09	- -	2E-08	- -	2E-08	General Toxicity/Immune System	8E-04	- -	3E-03	4E-03
			Dieldrin	5E-09	- -	2E-08	- -	2E-08	Liver	3E-05	- -	7E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-04	- -	N/A	5E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	3E-04	7E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	6E-07	- -	2E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								8E-06					7E-02

TABLE 9.17.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 8E-06

Total Hazard Across All Media: 7E-02

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	2E-02
Total Immune System HI =	2E-02
Total Kidney HI =	6E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-03

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill											
			Benzo(a)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	9E-06	- -	8E-06	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	2E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	4E-09	- -	1E-08	Liver	9E-05	- -	8E-05	2E-04
			Carbazole	9E-10	- -	7E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	2E-05	5E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	2E-04	4E-04
			Aroclor-1248	3E-06	- -	2E-06	- -	5E-06	General Toxicity/Immune System	3E-01	- -	3E-01	6E-01
			Aroclor-1254	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Aroclor-1260	8E-08	- -	6E-08	- -	1E-07	General Toxicity/Immune System	7E-03	- -	9E-03	2E-02
			Dieldrin	7E-08	- -	4E-08	- -	1E-07	Liver	3E-04	- -	3E-04	6E-04
			Dioxin TEQ	2E-06	- -	3E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-06	- -	8E-07	- -	6E-06	Skin	4E-02	- -	1E-02	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	2E-05	- -	1E-05	- -	3E-05		4E-01	- -	4E-01	8E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					8E-01
	Exposure Medium Total							3E-05					8E-01
Medium Total								3E-05					8E-01
Surface Water	Surface Water	Adjacent to Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	1E-05	1E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	2E-07	- -	2E-07	Liver	- -	- -	5E-04	5E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	5E-08	- -	5E-08	Liver	- -	- -	1E-03	1E-03
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	3E-02	3E-02
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	1E-01	1E-01
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-07	- -	2E-07		- -	- -	1E-01	1E-01
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-01
	Exposure Medium Total							2E-07					1E-01
Medium Total								2E-07					1E-01
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	- -	6E-08	- -	9E-08	Liver	5E-04	- -	6E-04	1E-03
			Carbazole	5E-10	- -	1E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	5E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	8E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	5E-05	7E-05
			Aroclor-1242	5E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	5E-03	- -	9E-03	1E-02
			Aroclor-1254	7E-08	- -	2E-07	- -	2E-07	General Toxicity/Immune System	6E-03	- -	1E-02	2E-02
			Aroclor-1260	3E-08	- -	7E-08	- -	9E-08	General Toxicity/Immune System	2E-03	- -	4E-03	7E-03
			Dieldrin	3E-08	- -	5E-08	- -	8E-08	Liver	1E-04	- -	2E-04	3E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	6E-06	- -	3E-06	- -	1E-05	Skin	5E-02	- -	2E-02	7E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	2E-03	6E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-03	- -	N/A	4E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	9E-06	- -	1E-05	- -	2E-05		1E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	7E-07	7E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	9E-05	9E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			N-Nitrosodiphenylamine	- -	- -	2E-09	- -	2E-09	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	3E-05	3E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	4E-09	- -	4E-09	Liver/Kidney	- -	- -	1E-05	1E-05
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	5E-09	- -	5E-09	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-04	1E-04
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	6E-04	6E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-08	- -	2E-08		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					1E-03
	Exposure Medium Total							2E-08					1E-03
Medium Total								2E-08					1E-03
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	3E-11	- -	- -	3E-11	Kidney	- -	6E-08	- -	6E-08
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	6E-05	- -	6E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	2E-06	- -	2E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	1E-05	- -	1E-05
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	1E-08	- -	- -	1E-08	Liver	- -	3E-06	- -	3E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	3E-08	- -	- -	3E-08	Immune System	- -	2E-04	- -	2E-04
			Carbon tetrachloride	- -	1E-10	- -	- -	1E-10	Liver	- -	8E-08	- -	8E-08
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	2E-04	- -	2E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	6E-07	- -	6E-07
			Ethylbenzene	- -	6E-09	- -	- -	6E-09	Developmental	- -	4E-06	- -	4E-06
			Methylene chloride	- -	9E-12	- -	- -	9E-12	Liver	- -	3E-08	- -	3E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	1E-06	- -	1E-06
			Trichloroethene	- -	2E-10	- -	- -	2E-10	CNS	- -	2E-05	- -	2E-05
			Vinyl Chloride	- -	2E-09	- -	- -	2E-09	Liver	- -	6E-06	- -	6E-06
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	2E-05	- -	2E-05
			Chemical Total	- -	5E-08	- -	- -	5E-08		- -	5E-04	- -	5E-04
			Radionuclide Total										
		Exposure Point Total						5E-08					5E-04
	Exposure Medium Total							5E-08					5E-04
Medium Total								5E-08					5E-04
Receptor Total								5E-05					1E+00

TABLE 9.18.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-05

Total Hazard Across All Media: 1E+00

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	2E-01
Total Immune System HI =	7E-01
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	1E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	1E-05
Total Developmental HI =	4E-02
Total Endocrine HI =	2E-02

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	5E-09	- -	9E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	2E-09	- -	3E-09	Liver	2E-05	- -	4E-05	6E-05
			Carbazole	2E-10	- -	3E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	5E-05	- -	1E-04	2E-04
			Aroclor-1248	3E-07	- -	5E-07	- -	8E-07	General Toxicity/Immune System	6E-02	- -	2E-01	2E-01
			Aroclor-1254	3E-08	- -	4E-08	- -	7E-08	General Toxicity/Immune System	6E-03	- -	1E-02	2E-02
			Aroclor-1260	8E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	2E-03	- -	5E-03	6E-03
			Dieldrin	1E-08	- -	2E-08	- -	3E-08	Liver	8E-05	- -	1E-04	2E-04
			Dioxin TEQ	2E-07	- -	7E-08	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	4E-07	- -	1E-06	Skin	1E-02	- -	6E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-03	- -	N/A	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	N/A	8E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	6E-04	- -	N/A	6E-04
			Chemical Total	4E-06	- -	6E-06	- -	1E-05		1E-01	- -	2E-01	3E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					3E-01
	Exposure Medium Total							1E-05					3E-01
Medium Total								1E-05					3E-01
Surface Water	Surface Water	Adjacent to Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	4E-10	- -	4E-10	Liver	- -	- -	3E-06	3E-06
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	7E-08	- -	7E-08	Liver	- -	- -	2E-04	2E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	6E-04	6E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-02	1E-02
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	5E-02	5E-02
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	9E-08	- -	9E-08		- -	- -	6E-02	6E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					6E-02
	Exposure Medium Total							9E-08					6E-02
Medium Total								9E-08					6E-02
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	5E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-09	- -	9E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	3E-08	- -	3E-08	Liver	1E-04	- -	3E-04	4E-04
			Carbazole	1E-10	- -	5E-10	- -	7E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	6E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	2E-05	3E-05
			Aroclor-1242	6E-09	- -	3E-08	- -	3E-08	General Toxicity/Immune System	1E-03	- -	4E-03	6E-03
			Aroclor-1254	7E-09	- -	4E-08	- -	4E-08	General Toxicity/Immune System	2E-03	- -	6E-03	7E-03
			Aroclor-1260	3E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	6E-04	- -	2E-03	3E-03
			Dieldrin	6E-09	- -	2E-08	- -	3E-08	Liver	3E-05	- -	8E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	9E-04	- -	N/A	9E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	5E-04	- -	N/A	5E-04
			Arsenic	1E-06	- -	1E-06	- -	3E-06	Skin	1E-02	- -	1E-02	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	1E-03	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-04	- -	N/A	5E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	9E-04	- -	N/A	9E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	N/A	3E-04
			Chemical Total	2E-06	- -	4E-06	- -	6E-06		3E-02	- -	2E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	3E-07	3E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	5E-05	5E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	6E-06	6E-06
			N-Nitrosodiphenylamine	- -	- -	7E-10	- -	7E-10	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	1E-05	1E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	2E-09	- -	2E-09	Liver/Kidney	- -	- -	5E-06	5E-06
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	7E-06	7E-06
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	5E-05	5E-05
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	3E-04	3E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A

TABLE 9.18.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	6E-04	6E-04
			Radionuclide Total										
		Exposure Point Total						1E-08					6E-04
	Exposure Medium Total							1E-08					6E-04
Medium Total								1E-08					6E-04
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	1E-11	- -	- -	1E-11	Kidney	- -	3E-08	- -	3E-08
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	3E-05	- -	3E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	1E-06	- -	1E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	7E-06	- -	7E-06
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	5E-09	- -	- -	5E-09	Liver	- -	1E-06	- -	1E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	9E-09	- -	- -	9E-09	Immune System	- -	1E-04	- -	1E-04
			Carbon tetrachloride	- -	5E-11	- -	- -	5E-11	Liver	- -	5E-08	- -	5E-08
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	1E-04	- -	1E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	4E-07	- -	4E-07
			Ethylbenzene	- -	2E-09	- -	- -	2E-09	Developmental	- -	2E-06	- -	2E-06
			Methylene chloride	- -	3E-12	- -	- -	3E-12	Liver	- -	2E-08	- -	2E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	7E-07	- -	7E-07
			Trichloroethene	- -	7E-11	- -	- -	7E-11	CNS	- -	1E-05	- -	1E-05
			Vinyl Chloride	- -	6E-10	- -	- -	6E-10	Liver	- -	4E-06	- -	4E-06
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	1E-05	- -	1E-05
			Chemical Total	- -	2E-08	- -	- -	2E-08		- -	3E-04	- -	3E-04
			Radionuclide Total										
		Exposure Point Total						2E-08					3E-04
	Exposure Medium Total							2E-08					3E-04
Medium Total								2E-08					3E-04
Receptor Total								2E-05					4E-01

TABLE 9.18.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 4E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-01
Total GI System HI =	7E-02
Total Immune System HI =	3E-01
Total Kidney HI =	7E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	2E-02
Total Endocrine HI =	4E-03

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill											
			Benzo(a)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	9E-06	- -	8E-06	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	2E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	4E-09	- -	1E-08	Liver	9E-05	- -	8E-05	2E-04
			Carbazole	9E-10	- -	7E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	2E-05	5E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	2E-04	4E-04
			Aroclor-1248	3E-06	- -	2E-06	- -	5E-06	General Toxicity/Immune System	3E-01	- -	3E-01	6E-01
			Aroclor-1254	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Aroclor-1260	8E-08	- -	6E-08	- -	1E-07	General Toxicity/Immune System	7E-03	- -	9E-03	2E-02
			Dieldrin	7E-08	- -	4E-08	- -	1E-07	Liver	3E-04	- -	3E-04	6E-04
			Dioxin TEQ	2E-06	- -	3E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-06	- -	8E-07	- -	6E-06	Skin	4E-02	- -	1E-02	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	2E-05	- -	1E-05	- -	3E-05		4E-01	- -	4E-01	8E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					8E-01
	Exposure Medium Total							3E-05					8E-01
Medium Total								3E-05					8E-01
Surface Water	Surface Water	Adjacent to Landfill (swimming)											
			Benzo(a)anthracene	8E-09	- -	N/A	- -	8E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-07	- -	N/A	- -	1E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	1E-08	- -	N/A	- -	1E-08	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			Benzo(k)fluoranthene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	1E-10	- -	N/A	- -	1E-10	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	7E-09	- -	N/A	- -	7E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-07	- -	N/A	8E-07
			1,4-Dichlorobenzene	9E-11	- -	3E-09	- -	3E-09	Liver	1E-06	- -	2E-05	2E-05
			Benzene	1E-09	- -	1E-08	- -	1E-08	Immune System	3E-05	- -	1E-04	2E-04
			Aroclor-1260	2E-08	- -	N/A	- -	2E-08	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			4,4'-DDD	2E-10	- -	N/A	- -	2E-10	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	2E-10	- -	N/A	- -	2E-10	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	7E-09	- -	2E-07	- -	2E-07	Liver	4E-05	- -	8E-04	8E-04
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	1E-09	- -	8E-08	- -	8E-08	Liver	4E-05	- -	2E-03	2E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-01	- -	5E-02	3E-01
			Arsenic	5E-07	- -	N/A	- -	5E-07	Skin	5E-03	- -	N/A	5E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	8E-02	- -	2E-02	1E-01
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-01	- -	2E-01	5E-01
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	4E-03	- -	N/A	4E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	7E-05	- -	N/A	7E-05
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-02	- -	7E-03	4E-02
			Chemical Total	7E-07	- -	3E-07	- -	1E-06		7E-01	- -	2E-01	9E-01
			Radionuclide Total										
		Exposure Point Total						1E-06					9E-01
	Exposure Medium Total							1E-06					9E-01
Medium Total								1E-06					9E-01
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	1E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	- -	6E-08	- -	9E-08	Liver	5E-04	- -	6E-04	1E-03
			Carbazole	5E-10	- -	1E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	5E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	8E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	5E-05	7E-05
			Aroclor-1242	5E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	5E-03	- -	9E-03	1E-02
			Aroclor-1254	7E-08	- -	2E-07	- -	2E-07	General Toxicity/Immune System	6E-03	- -	1E-02	2E-02
			Aroclor-1260	3E-08	- -	7E-08	- -	9E-08	General Toxicity/Immune System	2E-03	- -	4E-03	7E-03
			Dieldrin	3E-08	- -	5E-08	- -	8E-08	Liver	1E-04	- -	2E-04	3E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	6E-06	- -	3E-06	- -	1E-05	Skin	5E-02	- -	2E-02	7E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	2E-03	6E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	7E-03	- -	N/A	7E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-03	- -	N/A	4E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	9E-06	- -	1E-05	- -	2E-05		1E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	7E-07	7E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	9E-05	9E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			N-Nitrosodiphenylamine	- -	- -	2E-09	- -	2E-09	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	3E-05	3E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	4E-09	- -	4E-09	Liver/Kidney	- -	- -	1E-05	1E-05
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	5E-09	- -	5E-09	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	1E-04	1E-04
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	6E-04	6E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-08	- -	2E-08		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					1E-03
	Exposure Medium Total							2E-08					1E-03
Medium Total								2E-08					1E-03
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	3E-11	- -	- -	3E-11	Kidney	- -	6E-08	- -	6E-08
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	6E-05	- -	6E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	2E-06	- -	2E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	1E-05	- -	1E-05
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	1E-08	- -	- -	1E-08	Liver	- -	3E-06	- -	3E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	3E-08	- -	- -	3E-08	Immune System	- -	2E-04	- -	2E-04
			Carbon tetrachloride	- -	1E-10	- -	- -	1E-10	Liver	- -	8E-08	- -	8E-08
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	2E-04	- -	2E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	6E-07	- -	6E-07
			Ethylbenzene	- -	6E-09	- -	- -	6E-09	Developmental	- -	4E-06	- -	4E-06
			Methylene chloride	- -	9E-12	- -	- -	9E-12	Liver	- -	3E-08	- -	3E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	1E-06	- -	1E-06
			Trichloroethene	- -	2E-10	- -	- -	2E-10	CNS	- -	2E-05	- -	2E-05
			Vinyl Chloride	- -	2E-09	- -	- -	2E-09	Liver	- -	6E-06	- -	6E-06
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	2E-05	- -	2E-05
			Chemical Total	- -	5E-08	- -	- -	5E-08		- -	5E-04	- -	5E-04
			Radionuclide Total										
		Exposure Point Total						5E-08					5E-04
	Exposure Medium Total							5E-08					5E-04
Medium Total								5E-08					5E-04
Receptor Total								5E-05					2E+00

TABLE 9.19.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-05

Total Hazard Across All Media: 2E+00

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	6E-01
Total Immune System HI =	7E-01
Total Kidney HI =	2E-01
Total Liver HI =	6E-02
Total CNS HI =	2E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	1E-05
Total Developmental HI =	3E-01
Total Endocrine HI =	2E-02

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill											
			Benzo(a)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	5E-09	- -	9E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	2E-09	- -	3E-09	Liver	2E-05	- -	4E-05	6E-05
			Carbazole	2E-10	- -	3E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	5E-05	- -	1E-04	2E-04
			Aroclor-1248	3E-07	- -	5E-07	- -	8E-07	General Toxicity/Immune System	6E-02	- -	2E-01	2E-01
			Aroclor-1254	3E-08	- -	4E-08	- -	7E-08	General Toxicity/Immune System	6E-03	- -	1E-02	2E-02
			Aroclor-1260	8E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	2E-03	- -	5E-03	6E-03
			Dieldrin	1E-08	- -	2E-08	- -	3E-08	Liver	8E-05	- -	1E-04	2E-04
			Dioxin TEQ	2E-07	- -	7E-08	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	4E-07	- -	1E-06	Skin	1E-02	- -	6E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-03	- -	N/A	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	N/A	8E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	6E-04	- -	N/A	6E-04
			Chemical Total	4E-06	- -	6E-06	- -	1E-05		1E-01	- -	2E-01	3E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					3E-01
	Exposure Medium Total							1E-05					3E-01
Medium Total								1E-05					3E-01
Surface Water	Surface Water	Adjacent to Landfill (swimming)											
			Benzo(a)anthracene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	6E-08	- -	N/A	- -	6E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	7E-09	- -	N/A	- -	7E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-07	- -	N/A	1E-07
			Benzo(k)fluoranthene	5E-10	- -	N/A	- -	5E-10	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	5E-11	- -	N/A	- -	5E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-07	- -	N/A	1E-07
			1,4-Dichlorobenzene	2E-11	- -	7E-10	- -	7E-10	Liver	3E-07	- -	5E-06	6E-06
			Benzene	4E-10	- -	3E-09	- -	4E-09	Immune System	9E-06	- -	5E-05	5E-05
			Aroclor-1260	4E-09	- -	N/A	- -	4E-09	General Toxicity/Immune System	9E-04	- -	N/A	9E-04
			4,4'-DDD	5E-11	- -	N/A	- -	5E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	7E-11	- -	N/A	- -	7E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	3E-09	- -	1E-07	- -	1E-07	Liver	2E-05	- -	4E-04	4E-04
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	5E-10	- -	3E-08	- -	3E-08	Liver	2E-05	- -	9E-04	9E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-01	- -	2E-02	1E-01
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-03	- -	N/A	2E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-02	- -	9E-03	5E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-01	- -	8E-02	3E-01
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	7E-04	- -	N/A	7E-04
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	3E-05	- -	N/A	3E-05
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-02	- -	4E-03	2E-02
			Chemical Total	3E-07	- -	1E-07	- -	5E-07		4E-01	- -	1E-01	5E-01
			Radionuclide Total										
		Exposure Point Total						5E-07					5E-01
	Exposure Medium Total							5E-07					5E-01
Medium Total								5E-07					5E-01
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	5E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-09	- -	9E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	- -	3E-08	- -	3E-08	Liver	1E-04	- -	3E-04	4E-04
			Carbazole	1E-10	- -	5E-10	- -	7E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	6E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	2E-05	3E-05
			Aroclor-1242	6E-09	- -	3E-08	- -	3E-08	General Toxicity/Immune System	1E-03	- -	4E-03	6E-03
			Aroclor-1254	7E-09	- -	4E-08	- -	4E-08	General Toxicity/Immune System	2E-03	- -	6E-03	7E-03
			Aroclor-1260	3E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	6E-04	- -	2E-03	3E-03
			Dieldrin	6E-09	- -	2E-08	- -	3E-08	Liver	3E-05	- -	8E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	9E-04	- -	N/A	9E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	5E-04	- -	N/A	5E-04
			Arsenic	1E-06	- -	1E-06	- -	3E-06	Skin	1E-02	- -	1E-02	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	1E-03	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-04	- -	N/A	5E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	9E-04	- -	N/A	9E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	N/A	3E-04
			Chemical Total	2E-06	- -	4E-06	- -	6E-06		3E-02	- -	2E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Leachate	Leachate	Landfill											
			4-Methylphenol	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Acenaphthylene	- -	- -	N/A	- -	N/A	Liver	- -	- -	3E-07	3E-07
			Atrazine	- -	- -	N/A	- -	N/A	General Toxicity/Cardiovascular	- -	- -	N/A	N/A
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	5E-05	5E-05
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenz(a,h)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Dibenzofuran	- -	- -	N/A	- -	N/A	Kidney	- -	- -	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	6E-06	6E-06
			N-Nitrosodiphenylamine	- -	- -	7E-10	- -	7E-10	N/A	- -	- -	N/A	N/A
			Pentachlorophenol	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	1E-05	1E-05
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Chlorobenzene	- -	- -	N/A	- -	N/A	Liver/Kidney	- -	- -	N/A	N/A
			Ethylbenzene	- -	- -	2E-09	- -	2E-09	Liver/Kidney	- -	- -	5E-06	5E-06
			Xylene (total)	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	7E-06	7E-06
			Total PCBs	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-BHC	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	5E-05	5E-05
			Antimony	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Barium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Beryllium	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	3E-04	3E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Nickel	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A

TABLE 9.19.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Silver	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Thallium	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Zinc	- -	- -	N/A	- -	N/A	Blood	- -	- -	N/A	N/A
			Chemical Total	- -	- -	1E-08	- -	1E-08		- -	- -	6E-04	6E-04
			Radionuclide Total										
		Exposure Point Total						1E-08					6E-04
	Exposure Medium Total							1E-08					6E-04
Medium Total								1E-08					6E-04
Soil/Groundwate	Ambient Air	Landfill											
			1,1-Dichloroethane	- -	1E-11	- -	- -	1E-11	Kidney	- -	3E-08	- -	3E-08
			1,2,4-Trimethylbenzene	- -	N/A	- -	- -	N/A	Blood	- -	3E-05	- -	3E-05
			1,2-Dichloro-1,1,2,2-tetraflu	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,2-Dichlorobenzene	- -	N/A	- -	- -	N/A	General Toxicity	- -	1E-06	- -	1E-06
			1,3,5-Trimethylbenzene	- -	N/A	- -	- -	N/A	Respiratory/CNS/Blood	- -	7E-06	- -	7E-06
			1,3-Dichlorobenzene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			1,4-Dichlorobenzene	- -	5E-09	- -	- -	5E-09	Liver	- -	1E-06	- -	1E-06
			4-Ethyltoluene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzene	- -	9E-09	- -	- -	9E-09	Immune System	- -	1E-04	- -	1E-04
			Carbon tetrachloride	- -	5E-11	- -	- -	5E-11	Liver	- -	5E-08	- -	5E-08
			Chlorobenzene	- -	N/A	- -	- -	N/A	Liver/Kidney	- -	1E-04	- -	1E-04
			cis-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Dichlorodifluoromethane	- -	N/A	- -	- -	N/A	Liver	- -	4E-07	- -	4E-07
			Ethylbenzene	- -	2E-09	- -	- -	2E-09	Developmental	- -	2E-06	- -	2E-06
			Methylene chloride	- -	3E-12	- -	- -	3E-12	Liver	- -	2E-08	- -	2E-08
			trans-1,2-Dichloroethene	- -	N/A	- -	- -	N/A	Respiratory/Liver	- -	7E-07	- -	7E-07
			Trichloroethene	- -	7E-11	- -	- -	7E-11	CNS	- -	1E-05	- -	1E-05
			Vinyl Chloride	- -	6E-10	- -	- -	6E-10	Liver	- -	4E-06	- -	4E-06
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	1E-05	- -	1E-05
			Chemical Total	- -	2E-08	- -	- -	2E-08		- -	3E-04	- -	3E-04
			Radionuclide Total										
		Exposure Point Total						2E-08					3E-04
	Exposure Medium Total							2E-08					3E-04
Medium Total								2E-08					3E-04
Receptor Total								2E-05					8E-01

TABLE 9.19.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 8E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-01
Total GI System HI =	3E-01
Total Immune System HI =	3E-01
Total Kidney HI =	8E-02
Total Liver HI =	2E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	1E-01
Total Endocrine HI =	6E-03

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-05	- -	1E-05	- -	3E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	8E-05	- -	1E-04	2E-04
			Benzo(k)fluoranthene	3E-08	- -	3E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-06	- -	7E-07	- -	2E-06	Liver	2E-02	- -	2E-02	3E-02
			Carbazole	2E-09	- -	1E-09	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	1E-08	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-06	- -	2E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-05	- -	4E-05	9E-05
			Indeno(1,2,3-cd)pyrene	8E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	3E-04	5E-04
			Aroclor-1248	2E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Aroclor-1254	7E-08	- -	6E-08	- -	1E-07	General Toxicity/Immune System	7E-03	- -	9E-03	2E-02
			Aroclor-1260	1E-07	- -	8E-08	- -	2E-07	General Toxicity/Immune System	1E-02	- -	1E-02	2E-02
			Dieldrin	6E-07	- -	3E-07	- -	9E-07	Liver	3E-03	- -	2E-03	5E-03
			Dioxin TEQ	1E-06	- -	2E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Arsenic	4E-06	- -	7E-07	- -	5E-06	Skin	4E-02	- -	9E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-02	- -	N/A	8E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead	0E+00	- -	0E+00	- -	N/A	CNS	0E+00	- -	0E+00	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Chemical Total	3E-05	- -	2E-05	- -	5E-05		3E-01	- -	7E-02	4E-01
			Radionuclide Total										
		Exposure Point Total						5E-05					4E-01
	Exposure Medium Total							5E-05					4E-01
Medium Total								5E-05					4E-01
Surface Water	Surface Water	Downstream of Landfill (wading)											

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	1E-05	1E-05
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	1E-04	1E-04
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	5E-04	5E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	2E-03	2E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	4E-08	- -	4E-08		- -	- -	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						4E-08					2E-03
	Exposure Medium Total							4E-08					2E-03
Medium Total								4E-08					2E-03

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	3E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	4E-06	- -	8E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	5E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	8E-09	- -	1E-08	Liver	6E-05	- -	7E-05	1E-04
			Carbazole	6E-10	- -	2E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	6E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	6E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-07	- -	6E-07	- -	9E-07	General Toxicity/Immune System	2E-02	- -	4E-02	6E-02
			Aroclor-1260	8E-08	- -	2E-07	- -	3E-07	General Toxicity/Immune System	8E-03	- -	1E-02	2E-02
			Dieldrin	1E-08	- -	2E-08	- -	3E-08	Liver	6E-05	- -	7E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	4E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	9E-03	- -	N/A	9E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	7E-06	- -	1E-05	- -	2E-05		1E-01	- -	6E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Receptor Total								7E-05					5E-01

TABLE 9.20.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 7E-05

Total Hazard Across All Media: 5E-01

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-01
Total GI System HI =	1E-01
Total Immune System HI =	2E-01
Total Kidney HI =	3E-02
Total Liver HI =	8E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	3E-07	- -	6E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	6E-06	- -	9E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	5E-05	7E-05
			Benzo(k)fluoranthene	7E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	- -	3E-07	- -	6E-07	Liver	4E-03	- -	8E-03	1E-02
			Carbazole	4E-10	- -	7E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	3E-09	- -	5E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-05	- -	1E-04	2E-04
			Aroclor-1248	2E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	4E-03	- -	9E-03	1E-02
			Aroclor-1254	8E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	2E-03	- -	4E-03	6E-03
			Aroclor-1260	1E-08	- -	2E-08	- -	3E-08	General Toxicity/Immune System	3E-03	- -	6E-03	9E-03
			Dieldrin	1E-07	- -	1E-07	- -	3E-07	Liver	7E-04	- -	1E-03	2E-03
			Dioxin TEQ	2E-07	- -	8E-08	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Arsenic	9E-07	- -	3E-07	- -	1E-06	Skin	9E-03	- -	5E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	1E-03	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	0E+00	- -	0E+00	- -	N/A	CNS	0E+00	- -	0E+00	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	6E-03	- -	N/A	6E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	N/A	8E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Chemical Total	6E-06	- -	9E-06	- -	2E-05		7E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					1E-01
	Exposure Medium Total							2E-05					1E-01
Medium Total								2E-05					1E-01
Surface Water	Surface Water	Downstream of Landfill (wading)											

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	2E-06	2E-06
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	7E-05	7E-05
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	2E-04	2E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	8E-04	8E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-08	- -	2E-08		- -	- -	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					1E-03
	Exposure Medium Total							2E-08					1E-03
Medium Total								2E-08					1E-03

TABLE 9.20.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	8E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	8E-07	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	4E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	3E-09	- -	4E-09	Liver	1E-05	- -	4E-05	5E-05
			Carbazole	1E-10	- -	7E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	6E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	6E-06	8E-06
			Indeno(1,2,3-cd)pyrene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	3E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	6E-03	- -	2E-02	3E-02
			Aroclor-1260	9E-09	- -	5E-08	- -	5E-08	General Toxicity/Immune System	2E-03	- -	7E-03	9E-03
			Dieldrin	3E-09	- -	9E-09	- -	1E-08	Liver	1E-05	- -	3E-05	5E-05
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	8E-04	- -	N/A	8E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	4E-04	- -	N/A	4E-04
			Arsenic	3E-07	- -	4E-07	- -	7E-07	Skin	3E-03	- -	2E-03	6E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-04	- -	N/A	4E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-04	- -	N/A	5E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	N/A	3E-04
			Chemical Total	2E-06	- -	6E-06	- -	7E-06		3E-02	- -	3E-02	6E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					6E-02
	Exposure Medium Total							7E-06					6E-02
Medium Total								7E-06					6E-02
Receptor Total								2E-05					2E-01

TABLE 9.20.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 2E-01

Total Blood HI =	7E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	4E-02
Total Immune System HI =	6E-02
Total Kidney HI =	8E-03
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	7E-03

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-05	- -	1E-05	- -	3E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	8E-05	- -	1E-04	2E-04
			Benzo(k)fluoranthene	3E-08	- -	3E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-06	- -	7E-07	- -	2E-06	Liver	2E-02	- -	2E-02	3E-02
			Carbazole	2E-09	- -	1E-09	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	1E-08	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-06	- -	2E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-05	- -	4E-05	9E-05
			Indeno(1,2,3-cd)pyrene	8E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	3E-04	5E-04
			Aroclor-1248	2E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Aroclor-1254	7E-08	- -	6E-08	- -	1E-07	General Toxicity/Immune System	7E-03	- -	9E-03	2E-02
			Aroclor-1260	1E-07	- -	8E-08	- -	2E-07	General Toxicity/Immune System	1E-02	- -	1E-02	2E-02
			Dieldrin	6E-07	- -	3E-07	- -	9E-07	Liver	3E-03	- -	2E-03	5E-03
			Dioxin TEQ	1E-06	- -	2E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Arsenic	4E-06	- -	7E-07	- -	5E-06	Skin	4E-02	- -	9E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	8E-02	- -	N/A	8E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead	0E+00	- -	0E+00	- -	N/A	CNS	0E+00	- -	0E+00	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Chemical Total	3E-05	- -	2E-05	- -	5E-05		3E-01	- -	7E-02	4E-01
			Radionuclide Total										
		Exposure Point Total						5E-05					4E-01
	Exposure Medium Total							5E-05					4E-01
Medium Total								5E-05					4E-01
Surface Water	Surface Water	Downstream of Landfill (swimming)											

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	5E-09	- -	N/A	- -	5E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	6E-09	- -	N/A	- -	6E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	4E-07	- -	N/A	4E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	9E-07	- -	2E-05	2E-05
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	4E-07	- -	N/A	4E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	4E-09	- -	3E-08	- -	4E-08	Immune System	8E-05	- -	4E-04	5E-04
			Aroclor-1260	8E-09	- -	N/A	- -	8E-09	General Toxicity/Immune System	8E-04	- -	N/A	8E-04
			4,4'-DDD	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	2E-11	- -	N/A	- -	2E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	2E-11	- -	N/A	- -	2E-11	Liver	4E-07	- -	N/A	4E-07
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	2E-09	- -	7E-08	- -	7E-08	Liver	1E-05	- -	2E-04	2E-04
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	8E-04	4E-03
			Arsenic	1E-07	- -	N/A	- -	1E-07	Skin	1E-03	- -	N/A	1E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	6E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	2E-03	8E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-04	- -	N/A	3E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-05	- -	N/A	3E-05
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-03	- -	N/A	1E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	1E-04	- -	N/A	1E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	3E-04	2E-03
			Chemical Total	2E-07	- -	1E-07	- -	3E-07		2E-02	- -	5E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						3E-07					2E-02
	Exposure Medium Total							3E-07					2E-02
Medium Total								3E-07					2E-02

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	3E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	4E-06	- -	8E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	5E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	8E-09	- -	1E-08	Liver	6E-05	- -	7E-05	1E-04
			Carbazole	6E-10	- -	2E-09	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	6E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	6E-05	9E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	2E-07	- -	6E-07	- -	9E-07	General Toxicity/Immune System	2E-02	- -	4E-02	6E-02
			Aroclor-1260	8E-08	- -	2E-07	- -	3E-07	General Toxicity/Immune System	8E-03	- -	1E-02	2E-02
			Dieldrin	1E-08	- -	2E-08	- -	3E-08	Liver	6E-05	- -	7E-05	1E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	4E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	9E-03	- -	N/A	9E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	7E-06	- -	1E-05	- -	2E-05		1E-01	- -	6E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Receptor Total								7E-05					5E-01

TABLE 9.21.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 7E-05

Total Hazard Across All Media: 5E-01

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-01
Total GI System HI =	2E-01
Total Immune System HI =	2E-01
Total Kidney HI =	3E-02
Total Liver HI =	8E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	3E-07	- -	6E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	6E-06	- -	9E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	5E-05	7E-05
			Benzo(k)fluoranthene	7E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	- -	3E-07	- -	6E-07	Liver	4E-03	- -	8E-03	1E-02
			Carbazole	4E-10	- -	7E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	3E-09	- -	5E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-05	- -	1E-04	2E-04
			Aroclor-1248	2E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	4E-03	- -	9E-03	1E-02
			Aroclor-1254	8E-09	- -	1E-08	- -	2E-08	General Toxicity/Immune System	2E-03	- -	4E-03	6E-03
			Aroclor-1260	1E-08	- -	2E-08	- -	3E-08	General Toxicity/Immune System	3E-03	- -	6E-03	9E-03
			Dieldrin	1E-07	- -	1E-07	- -	3E-07	Liver	7E-04	- -	1E-03	2E-03
			Dioxin TEQ	2E-07	- -	8E-08	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Arsenic	9E-07	- -	3E-07	- -	1E-06	Skin	9E-03	- -	5E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	1E-03	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	0E+00	- -	0E+00	- -	N/A	CNS	0E+00	- -	0E+00	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	6E-03	- -	N/A	6E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	N/A	8E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Chemical Total	6E-06	- -	9E-06	- -	2E-05		7E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					1E-01
	Exposure Medium Total							2E-05					1E-01
Medium Total								2E-05					1E-01
Surface Water	Surface Water	Downstream of Landfill (swimming)											

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-09	- -	N/A	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-07	- -	N/A	1E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Chrysene	2E-11	- -	N/A	- -	2E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	2E-07	- -	3E-06	3E-06
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-07	- -	N/A	2E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	2E-09	- -	1E-08	- -	2E-08	Immune System	4E-05	- -	2E-04	2E-04
			Aroclor-1260	2E-09	- -	N/A	- -	2E-09	General Toxicity/Immune System	4E-04	- -	N/A	4E-04
			4,4'-DDD	2E-11	- -	N/A	- -	2E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	7E-12	- -	N/A	- -	7E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	8E-12	- -	N/A	- -	8E-12	Liver	2E-07	- -	N/A	2E-07
			alpha-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	9E-10	- -	3E-08	- -	3E-08	Liver	5E-06	- -	1E-04	1E-04
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	4E-04	2E-03
			Arsenic	6E-08	- -	N/A	- -	6E-08	Skin	6E-04	- -	N/A	6E-04
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	3E-04	2E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	1E-03	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-04	- -	N/A	2E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-05	- -	N/A	1E-05
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-04	- -	N/A	7E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	5E-05	- -	N/A	5E-05
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	1E-04	8E-04
			Chemical Total	7E-08	- -	4E-08	- -	1E-07		9E-03	- -	2E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						1E-07					1E-02
	Exposure Medium Total							1E-07					1E-02
Medium Total								1E-07					1E-02

TABLE 9.21.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Downstream of Landfill											
			Benzo(a)anthracene	8E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	8E-07	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-08	- -	4E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	6E-09	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	3E-09	- -	4E-09	Liver	1E-05	- -	4E-05	5E-05
			Carbazole	1E-10	- -	7E-10	- -	8E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	6E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	6E-06	8E-06
			Indeno(1,2,3-cd)pyrene	4E-08	- -	2E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	3E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	3E-08	- -	1E-07	- -	2E-07	General Toxicity/Immune System	6E-03	- -	2E-02	3E-02
			Aroclor-1260	9E-09	- -	5E-08	- -	5E-08	General Toxicity/Immune System	2E-03	- -	7E-03	9E-03
			Dieldrin	3E-09	- -	9E-09	- -	1E-08	Liver	1E-05	- -	3E-05	5E-05
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	8E-04	- -	N/A	8E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	4E-04	- -	N/A	4E-04
			Arsenic	3E-07	- -	4E-07	- -	7E-07	Skin	3E-03	- -	2E-03	6E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	2E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-03	- -	N/A	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-04	- -	N/A	4E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-03	- -	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-04	- -	N/A	4E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-04	- -	N/A	5E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	N/A	3E-04
			Chemical Total	2E-06	- -	6E-06	- -	7E-06		3E-02	- -	3E-02	6E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					6E-02
	Exposure Medium Total							7E-06					6E-02
Medium Total								7E-06					6E-02
Receptor Total								2E-05					2E-01

TABLE 9.21.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 2E-01

Total Blood HI =	7E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	4E-02
Total Immune System HI =	6E-02
Total Kidney HI =	1E-02
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	7E-03

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	3E-07	- -	3E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	3E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	4E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	1E-09	- -	4E-09	Liver	3E-05	- -	3E-05	7E-05
			Carbazole	6E-10	- -	4E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	4E-05	7E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Dieldrin	2E-06	- -	8E-07	- -	2E-06	Liver	7E-03	- -	6E-03	1E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-03	- -	N/A	6E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	4E-06	- -	6E-07	- -	4E-06	Skin	3E-02	- -	8E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	1E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-02	- -	N/A	6E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	3E-04	- -	N/A	3E-04
			Chemical Total	1E-05	- -	6E-06	- -	2E-05		2E-01	- -	4E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-07	- -	2E-07	Liver	- -	- -	2E-03	2E-03
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	3E-09	- -	3E-09	Liver	- -	- -	4E-05	4E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	9E-04	9E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	4E-03	4E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	4E-03	4E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-07	- -	2E-07		- -	- -	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	- -	4E-08	- -	5E-08	Liver	3E-04	- -	3E-04	6E-04
			Carbazole	3E-10	- -	7E-10	- -	9E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	1E-03	- -	2E-03	3E-03
			Aroclor-1260	1E-07	- -	3E-07	- -	4E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	1E-07	- -	2E-07	- -	4E-07	Liver	6E-04	- -	8E-04	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	3E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-03	- -	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	3E-06	- -	5E-06	- -	9E-06		9E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								2E-05					4E-01

TABLE 9.22.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 4E-01

Total Blood HI =	5E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	8E-02
Total GI System HI =	1E-01
Total Immune System HI =	8E-02
Total Kidney HI =	2E-02
Total Liver HI =	4E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	7E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	6E-10	- -	6E-10	- -	1E-09	Liver	9E-06	- -	2E-05	2E-05
			Carbazole	1E-10	- -	2E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	2E-05	3E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	5E-03	- -	1E-02	2E-02
			Dieldrin	3E-07	- -	4E-07	- -	7E-07	Liver	2E-03	- -	3E-03	5E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	6E-04	- -	N/A	6E-04
			Arsenic	8E-07	- -	3E-07	- -	1E-06	Skin	8E-03	- -	4E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	5E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	7E-04	- -	N/A	7E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	N/A	7E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-05	- -	N/A	8E-05
			Chemical Total	2E-06	- -	3E-06	- -	5E-06		5E-02	- -	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					7E-02
	Exposure Medium Total							5E-06					7E-02
Medium Total								5E-06					7E-02
Surface Water	Surface Water	Upstream of Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	5E-04	5E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	6E-10	- -	6E-10	Liver	- -	- -	1E-05	1E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	3E-04	3E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	6E-04	6E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	7E-04	7E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	6E-08	- -	6E-08		- -	- -	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						6E-08					2E-03
	Exposure Medium Total							6E-08					2E-03
Medium Total								6E-08					2E-03
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-07	- -	8E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	9E-10	- -	4E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	7E-09	- -	9E-09	Liver	3E-05	- -	7E-05	1E-04
			Carbazole	6E-11	- -	3E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	7E-06	9E-06
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-10	- -	3E-09	- -	3E-09	General Toxicity/Immune System	1E-04	- -	4E-04	5E-04
			Aroclor-1260	4E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	9E-04	- -	3E-03	4E-03
			Dieldrin	1E-08	- -	4E-08	- -	5E-08	Liver	5E-05	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	6E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	5E-07	- -	1E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								7E-06					9E-02

TABLE 9.22.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 7E-06

Total Hazard Across All Media: 9E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	3E-02
Total Immune System HI =	2E-02
Total Kidney HI =	3E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	5E-03

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	3E-07	- -	3E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	3E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	4E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	1E-09	- -	4E-09	Liver	3E-05	- -	3E-05	7E-05
			Carbazole	6E-10	- -	4E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	4E-05	7E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	2E-02	- -	3E-02	5E-02
			Dieldrin	2E-06	- -	8E-07	- -	2E-06	Liver	7E-03	- -	6E-03	1E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-03	- -	N/A	6E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	2E-03	- -	N/A	2E-03
			Arsenic	4E-06	- -	6E-07	- -	4E-06	Skin	3E-02	- -	8E-03	4E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	1E-03	4E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-02	- -	N/A	6E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-03	- -	N/A	6E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	N/A	3E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	3E-04	- -	N/A	3E-04
			Chemical Total	1E-05	- -	6E-06	- -	2E-05		2E-01	- -	4E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (swimming)											
			Benzo(a)anthracene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-08	- -	N/A	- -	5E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	8E-09	- -	N/A	- -	8E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	4E-07	- -	N/A	4E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	5E-09	- -	3E-07	- -	3E-07	Liver	6E-05	- -	3E-03	3E-03
			Chrysene	6E-11	- -	N/A	- -	6E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-07	- -	N/A	7E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	5E-11	- -	5E-09	- -	5E-09	Liver	1E-06	- -	7E-05	7E-05
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	8E-10	- -	6E-08	- -	6E-08	Liver	3E-05	- -	1E-03	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-02	- -	6E-03	3E-02
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-03	- -	N/A	2E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	5E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	6E-03	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-04	- -	N/A	3E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-04	- -	N/A	7E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-04	- -	N/A	5E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	6E-04	4E-03
			Chemical Total	3E-07	- -	4E-07	- -	7E-07		5E-02	- -	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						7E-07					7E-02
	Exposure Medium Total							7E-07					7E-02
Medium Total								7E-07					7E-02
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	- -	4E-08	- -	5E-08	Liver	3E-04	- -	3E-04	6E-04
			Carbazole	3E-10	- -	7E-10	- -	9E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	1E-03	- -	2E-03	3E-03
			Aroclor-1260	1E-07	- -	3E-07	- -	4E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	1E-07	- -	2E-07	- -	4E-07	Liver	6E-04	- -	8E-04	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	3E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-03	- -	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	3E-06	- -	5E-06	- -	9E-06		9E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								2E-05					4E-01

TABLE 9.23.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 4E-01

Total Blood HI =	5E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	8E-02
Total GI System HI =	1E-01
Total Immune System HI =	8E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	4E-02
Total Endocrine HI =	3E-02

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	7E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	6E-10	- -	6E-10	- -	1E-09	Liver	9E-06	- -	2E-05	2E-05
			Carbazole	1E-10	- -	2E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-06	- -	2E-05	3E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	5E-03	- -	1E-02	2E-02
			Dieldrin	3E-07	- -	4E-07	- -	7E-07	Liver	2E-03	- -	3E-03	5E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	6E-04	- -	N/A	6E-04
			Arsenic	8E-07	- -	3E-07	- -	1E-06	Skin	8E-03	- -	4E-03	1E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	5E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	7E-04	- -	N/A	7E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-03	- -	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	N/A	7E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-05	- -	N/A	8E-05
			Chemical Total	2E-06	- -	3E-06	- -	5E-06		5E-02	- -	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					7E-02
	Exposure Medium Total							5E-06					7E-02
Medium Total								5E-06					7E-02
Surface Water	Surface Water	Upstream of Landfill (swimming)											
			Benzo(a)anthracene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-08	- -	N/A	- -	1E-08	N/A	N/A	- -	N/A	N/A

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	2E-09	- -	N/A	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-07	- -	N/A	1E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	7E-08	- -	7E-08	Liver	2E-05	- -	8E-04	8E-04
			Chrysene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-07	- -	N/A	2E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	1E-11	- -	9E-10	- -	9E-10	Liver	3E-07	- -	2E-05	2E-05
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	2E-10	- -	2E-08	- -	2E-08	Liver	9E-06	- -	4E-04	4E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-03	- -	1E-03	6E-03
			Arsenic	7E-08	- -	N/A	- -	7E-08	Skin	7E-04	- -	N/A	7E-04
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-04	- -	2E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	1E-03	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-04	- -	N/A	1E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-04	- -	N/A	1E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	1E-04	8E-04
			Chemical Total	9E-08	- -	9E-08	- -	2E-07		1E-02	- -	4E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A

TABLE 9.23.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-07	- -	8E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	9E-10	- -	4E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	7E-09	- -	9E-09	Liver	3E-05	- -	7E-05	1E-04
			Carbazole	6E-11	- -	3E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	7E-06	9E-06
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-10	- -	3E-09	- -	3E-09	General Toxicity/Immune System	1E-04	- -	4E-04	5E-04
			Aroclor-1260	4E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	9E-04	- -	3E-03	4E-03
			Dieldrin	1E-08	- -	4E-08	- -	5E-08	Liver	5E-05	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	6E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	5E-07	- -	1E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								7E-06					1E-01

TABLE 9.23.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 7E-06

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	3E-02
Total Immune System HI =	2E-02
Total Kidney HI =	5E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	5E-03

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-08	- -	3E-08	- -	6E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-08	- -	8E-09	- -	2E-08	Liver	2E-04	- -	2E-04	4E-04
			Carbazole	9E-10	- -	6E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-05	- -	7E-05	1E-04
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-07	- -	8E-08	- -	2E-07	General Toxicity/Immune System	1E-02	- -	1E-02	2E-02
			Aroclor-1260	1E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	4E-07	- -	2E-07	- -	6E-07	Liver	2E-03	- -	2E-03	4E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	9E-03	- -	N/A	9E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-06	- -	8E-07	- -	6E-06	Skin	4E-02	- -	1E-02	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	5E-02	- -	N/A	5E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	7E-04	- -	N/A	7E-04
			Chemical Total	1E-05	- -	9E-06	- -	2E-05		2E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-07	- -	2E-07	Liver	- -	- -	2E-03	2E-03
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	3E-09	- -	3E-09	Liver	- -	- -	4E-05	4E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	9E-04	9E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	4E-03	4E-03
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	4E-03	4E-03
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-07	- -	2E-07		- -	- -	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	- -	4E-08	- -	5E-08	Liver	3E-04	- -	3E-04	6E-04
			Carbazole	3E-10	- -	7E-10	- -	9E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	1E-03	- -	2E-03	3E-03
			Aroclor-1260	1E-07	- -	3E-07	- -	4E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	1E-07	- -	2E-07	- -	4E-07	Liver	6E-04	- -	8E-04	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	3E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-03	- -	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	3E-06	- -	5E-06	- -	9E-06		9E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								3E-05					4E-01

TABLE 9.24.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 4E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-02
Total GI System HI =	1E-01
Total Immune System HI =	9E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	1E-02

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	8E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	1E-09	- -	2E-09	Liver	2E-05	- -	3E-05	4E-05
			Carbazole	2E-10	- -	3E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	2E-05	3E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	4E-09	- -	6E-09	- -	1E-08	General Toxicity/Immune System	8E-04	- -	2E-03	3E-03
			Aroclor-1260	6E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	1E-03	- -	3E-03	4E-03
			Dieldrin	4E-08	- -	5E-08	- -	8E-08	Liver	2E-04	- -	4E-04	6E-04
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	6E-07	- -	2E-07	- -	8E-07	Skin	6E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	5E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	2E-06	- -	2E-06	- -	4E-06		3E-02	- -	9E-03	4E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					4E-02
	Exposure Medium Total							4E-06					4E-02
Medium Total								4E-06					4E-02
Surface Water	Surface Water	Upstream of Landfill (wading)											
			Benzo(a)anthracene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Benzo(g,h,i)perylene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Benzo(k)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	5E-04	5E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			Naphthalene	- -	- -	N/A	- -	N/A	General Toxicity	- -	- -	N/A	N/A
			Phenanthrene	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			1,4-Dichlorobenzene	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Benzene	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Aroclor-1260	- -	- -	N/A	- -	N/A	General Toxicity/Immune System	- -	- -	N/A	N/A
			4,4'-DDD	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDE	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			4,4'-DDT	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			alpha-Chlordane	- -	- -	6E-10	- -	6E-10	Liver	- -	- -	1E-05	1E-05
			beta-BHC	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Dieldrin	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Gamma-Chlordane	- -	- -	N/A	- -	N/A	Liver	- -	- -	N/A	N/A
			Heptachlor Epoxide	- -	- -	1E-08	- -	1E-08	Liver	- -	- -	3E-04	3E-04
			Aluminum	- -	- -	N/A	- -	N/A	Developmental	- -	- -	6E-04	6E-04
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cadmium (other media)	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chromium	- -	- -	N/A	- -	N/A	GI System	- -	- -	7E-04	7E-04
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Copper	- -	- -	N/A	- -	N/A	GI System	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Lead	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Mercury (water)	- -	- -	N/A	- -	N/A	Immune System	- -	- -	N/A	N/A
			Vanadium	- -	- -	N/A	- -	N/A	Kidney	- -	- -	N/A	N/A
			Chemical Total	- -	- -	6E-08	- -	6E-08		- -	- -	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						6E-08					2E-03
	Exposure Medium Total							6E-08					2E-03
Medium Total								6E-08					2E-03
Sediment	Sediment	Upstream of Landfill											

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-07	- -	8E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	9E-10	- -	4E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	7E-09	- -	9E-09	Liver	3E-05	- -	7E-05	1E-04
			Carbazole	6E-11	- -	3E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	7E-06	9E-06
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-10	- -	3E-09	- -	3E-09	General Toxicity/Immune System	1E-04	- -	4E-04	5E-04
			Aroclor-1260	4E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	9E-04	- -	3E-03	4E-03
			Dieldrin	1E-08	- -	4E-08	- -	5E-08	Liver	5E-05	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	6E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	5E-07	- -	1E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								6E-06					6E-02

TABLE 9.24.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 6E-06

Total Hazard Across All Media: 6E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	7E-03
Total CNS HI =	2E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	2E-03

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	6E-07	- -	5E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	9E-07	- -	8E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-08	- -	3E-08	- -	6E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-08	- -	8E-09	- -	2E-08	Liver	2E-04	- -	2E-04	4E-04
			Carbazole	9E-10	- -	6E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	6E-05	- -	7E-05	1E-04
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-07	- -	8E-08	- -	2E-07	General Toxicity/Immune System	1E-02	- -	1E-02	2E-02
			Aroclor-1260	1E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	4E-07	- -	2E-07	- -	6E-07	Liver	2E-03	- -	2E-03	4E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	9E-03	- -	N/A	9E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	5E-06	- -	8E-07	- -	6E-06	Skin	4E-02	- -	1E-02	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-03	- -	3E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	5E-02	- -	N/A	5E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-02	- -	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	7E-04	- -	N/A	7E-04
			Chemical Total	1E-05	- -	9E-06	- -	2E-05		2E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (swimming)											
			Benzo(a)anthracene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	5E-08	- -	N/A	- -	5E-08	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	8E-09	- -	N/A	- -	8E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	4E-07	- -	N/A	4E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	5E-09	- -	3E-07	- -	3E-07	Liver	6E-05	- -	3E-03	3E-03
			Chrysene	6E-11	- -	N/A	- -	6E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	7E-07	- -	N/A	7E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	5E-11	- -	5E-09	- -	5E-09	Liver	1E-06	- -	7E-05	7E-05
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	8E-10	- -	6E-08	- -	6E-08	Liver	3E-05	- -	1E-03	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-02	- -	6E-03	3E-02
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-03	- -	N/A	2E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	5E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-02	- -	6E-03	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-04	- -	N/A	3E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-04	- -	N/A	7E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-04	- -	N/A	5E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-03	- -	6E-04	4E-03
			Chemical Total	3E-07	- -	4E-07	- -	7E-07		5E-02	- -	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						7E-07					7E-02
	Exposure Medium Total							7E-07					7E-02
Medium Total								7E-07					7E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-06	- -	3E-06	- -	4E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	3E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	- -	4E-08	- -	5E-08	Liver	3E-04	- -	3E-04	6E-04
			Carbazole	3E-10	- -	7E-10	- -	9E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	7E-06	- -	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	2E-05	4E-05
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	1E-03	- -	2E-03	3E-03
			Aroclor-1260	1E-07	- -	3E-07	- -	4E-07	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	1E-07	- -	2E-07	- -	4E-07	Liver	6E-04	- -	8E-04	1E-03
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	1E-06	- -	8E-07	- -	2E-06	Skin	1E-02	- -	5E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-03	- -	3E-03	8E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-02	- -	N/A	2E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	7E-03	- -	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-03	- -	N/A	3E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chemical Total	3E-06	- -	5E-06	- -	9E-06		9E-02	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								3E-05					4E-01

TABLE 9.25.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 3E-05

Total Hazard Across All Media: 4E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-02
Total GI System HI =	1E-01
Total Immune System HI =	9E-02
Total Kidney HI =	3E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	4E-02
Total Endocrine HI =	2E-02

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)											
			Benzo(a)anthracene	8E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	7E-07	- -	1E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	7E-09	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	1E-09	- -	2E-09	Liver	2E-05	- -	3E-05	4E-05
			Carbazole	2E-10	- -	3E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	5E-06	- -	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	9E-06	- -	2E-05	3E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	4E-09	- -	6E-09	- -	1E-08	General Toxicity/Immune System	8E-04	- -	2E-03	3E-03
			Aroclor-1260	6E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	1E-03	- -	3E-03	4E-03
			Dieldrin	4E-08	- -	5E-08	- -	8E-08	Liver	2E-04	- -	4E-04	6E-04
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-03	- -	N/A	1E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	6E-07	- -	2E-07	- -	8E-07	Skin	6E-03	- -	3E-03	9E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	5E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	N/A	- -	N/A	N/A
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-03	- -	N/A	1E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-04	- -	N/A	7E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	2E-06	- -	2E-06	- -	4E-06		3E-02	- -	9E-03	4E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					4E-02
	Exposure Medium Total							4E-06					4E-02
Medium Total								4E-06					4E-02
Surface Water	Surface Water	Upstream of Landfill (swimming)											
			Benzo(a)anthracene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-08	- -	N/A	- -	1E-08	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-09	- -	N/A	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-07	- -	N/A	1E-07
			Benzo(k)fluoranthene	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	- -	7E-08	- -	7E-08	Liver	2E-05	- -	8E-04	8E-04
			Chrysene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-07	- -	N/A	2E-07
			1,4-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Benzene	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			4,4'-DDD	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			alpha-Chlordane	1E-11	- -	9E-10	- -	9E-10	Liver	3E-07	- -	2E-05	2E-05
			beta-BHC	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Gamma-Chlordane	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Heptachlor Epoxide	2E-10	- -	2E-08	- -	2E-08	Liver	9E-06	- -	4E-04	4E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	5E-03	- -	1E-03	6E-03
			Arsenic	7E-08	- -	N/A	- -	7E-08	Skin	7E-04	- -	N/A	7E-04
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-04	- -	2E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	1E-03	4E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-04	- -	N/A	1E-04
			Copper	N/A	- -	N/A	- -	N/A	GI System	N/A	- -	N/A	N/A
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	N/A	- -	N/A	N/A
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-04	- -	N/A	1E-04
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Mercury (water)	N/A	- -	N/A	- -	N/A	Immune System	N/A	- -	N/A	N/A
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	1E-04	8E-04
			Chemical Total	9E-08	- -	9E-08	- -	2E-07		1E-02	- -	4E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.25.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-08	- -	8E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-07	- -	8E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	9E-10	- -	4E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	- -	7E-09	- -	9E-09	Liver	3E-05	- -	7E-05	1E-04
			Carbazole	6E-11	- -	3E-10	- -	3E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	- -	3E-08	- -	4E-08	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	7E-06	9E-06
			Aroclor-1242	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	5E-10	- -	3E-09	- -	3E-09	General Toxicity/Immune System	1E-04	- -	4E-04	5E-04
			Aroclor-1260	4E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	9E-04	- -	3E-03	4E-03
			Dieldrin	1E-08	- -	4E-08	- -	5E-08	Liver	5E-05	- -	1E-04	2E-04
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-04	- -	N/A	6E-04
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	N/A	- -	N/A	N/A
			Arsenic	2E-07	- -	2E-07	- -	4E-07	Skin	2E-03	- -	1E-03	3E-03
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	6E-04	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-03	- -	N/A	2E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	2E-04	- -	N/A	2E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-04	- -	N/A	2E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-04	- -	N/A	2E-04
			Chemical Total	5E-07	- -	1E-06	- -	2E-06		1E-02	- -	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								6E-06					7E-02

TABLE 9.25.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 6E-06

Total Hazard Across All Media: 7E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	5E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	2E-03

TABLE 9.26.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-08	- -	4E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	2E-06	- -	4E-07	- -	3E-06	Skin	2E-02	- -	5E-03	2E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Chemical Total	3E-06	- -	7E-07	- -	3E-06		4E-02	- -	5E-03	5E-02
			Radionuclide Total										
		Exposure Point Total						3E-06					5E-02
	Exposure Medium Total							3E-06					5E-02
Medium Total								3E-06					5E-02
Surface Water	Surface Water	Wetlands (wading)											
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	4E-08	- -	4E-08	Liver	- -	- -	4E-04	4E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			beta-BHC	- -	- -	4E-09	- -	4E-09	Liver	- -	- -	1E-05	1E-05
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Chemical Total	- -	- -	4E-08	- -	4E-08		- -	- -	4E-04	4E-04
			Radionuclide Total										
		Exposure Point Total						4E-08					4E-04
	Exposure Medium Total							4E-08					4E-04
Medium Total								4E-08					4E-04
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	5E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	3E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	4E-10	- -	9E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	2E-03	- -	3E-03	4E-03

TABLE 9.26.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	1E-06	- -	7E-07	- -	2E-06	Skin	1E-02	- -	4E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-03	- -	N/A	7E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Chemical Total	4E-06	- -	7E-06	- -	1E-05		7E-02	- -	7E-03	8E-02
			Radionuclide Total										
		Exposure Point Total						1E-05					8E-02
	Exposure Medium Total							1E-05					8E-02
Medium Total								1E-05					8E-02
Receptor Total								1E-05					1E-01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	3E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	3E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-02

TABLE 9.26.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	3E-07	- -	1E-07	- -	4E-07	Skin	3E-03	- -	1E-03	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	4E-07	- -	2E-07	- -	6E-07		7E-03	- -	1E-03	8E-03
			Radionuclide Total										
		Exposure Point Total						6E-07					8E-03
	Exposure Medium Total							6E-07					8E-03
Medium Total								6E-07					8E-03
Surface Water	Surface Water	Wetlands (wading)											
			Benzo(b)fluoranthene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	- -	- -	2E-08	- -	2E-08	Liver	- -	- -	2E-04	2E-04
			Chrysene	- -	- -	N/A	- -	N/A	N/A	- -	- -	N/A	N/A
			beta-BHC	- -	- -	2E-09	- -	2E-09	Liver	- -	- -	5E-06	5E-06
			Arsenic	- -	- -	N/A	- -	N/A	Skin	- -	- -	N/A	N/A
			Cobalt	- -	- -	N/A	- -	N/A	Endocrine	- -	- -	N/A	N/A
			Cyanide	- -	- -	N/A	- -	N/A	Endocrine/CNS	- -	- -	N/A	N/A
			Iron	- -	- -	N/A	- -	N/A	Liver/GI System	- -	- -	N/A	N/A
			Manganese (other media)	- -	- -	N/A	- -	N/A	CNS	- -	- -	N/A	N/A
			Chemical Total	- -	- -	2E-08	- -	2E-08		- -	- -	2E-04	2E-04
			Radionuclide Total										
		Exposure Point Total						2E-08					2E-04
	Exposure Medium Total							2E-08					2E-04
Medium Total								2E-08					2E-04
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	4E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	5E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	8E-11	- -	4E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	2E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	4E-04	- -	1E-03	2E-03

TABLE 9.26.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-04	- -	N/A	3E-04
			Arsenic	3E-07	- -	3E-07	- -	6E-07	Skin	3E-03	- -	2E-03	5E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	9E-04	- -	N/A	9E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Chemical Total	9E-07	- -	3E-06	- -	4E-06		2E-02	- -	3E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					2E-02
	Exposure Medium Total							4E-06					2E-02
Medium Total								4E-06					2E-02
Receptor Total								4E-06					3E-02

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 4E-06

Total Hazard Across All Media: 3E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	8E-03
Total Immune System HI =	2E-03
Total Kidney HI =	6E-04
Total Liver HI =	6E-03
Total CNS HI =	9E-04
Total Skin HI =	9E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	5E-03

TABLE 9.27.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	4E-07	- -	3E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-08	- -	4E-08	- -	8E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	2E-06	- -	4E-07	- -	3E-06	Skin	2E-02	- -	5E-03	2E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Chemical Total	3E-06	- -	7E-07	- -	3E-06		4E-02	- -	5E-03	5E-02
			Radionuclide Total										
		Exposure Point Total						3E-06					5E-02
	Exposure Medium Total							3E-06					5E-02
Medium Total								3E-06					5E-02
Surface Water	Surface Water	Wetlands (swimming)											
			Benzo(b)fluoranthene	4E-09	- -	N/A	- -	4E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	9E-10	- -	6E-08	- -	6E-08	Liver	1E-05	- -	6E-04	6E-04
			Chrysene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			beta-BHC	3E-10	- -	6E-09	- -	7E-09	Liver	1E-06	- -	2E-05	2E-05
			Arsenic	8E-08	- -	N/A	- -	8E-08	Skin	7E-04	- -	N/A	7E-04
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	9E-04	- -	N/A	9E-04
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	6E-04	- -	N/A	6E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-04	- -	N/A	3E-04
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	6E-04	- -	N/A	6E-04
			Chemical Total	8E-08	- -	7E-08	- -	1E-07		3E-03	- -	6E-04	4E-03
			Radionuclide Total										
		Exposure Point Total						1E-07					4E-03
	Exposure Medium Total							1E-07					4E-03
Medium Total								1E-07					4E-03
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-07	- -	5E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	3E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	4E-10	- -	9E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-07	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	2E-03	- -	3E-03	4E-03

TABLE 9.27.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	7E-03	- -	N/A	7E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	1E-06	- -	7E-07	- -	2E-06	Skin	1E-02	- -	4E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-03	- -	N/A	7E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-03	- -	N/A	4E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Chemical Total	4E-06	- -	7E-06	- -	1E-05		7E-02	- -	7E-03	8E-02
			Radionuclide Total										
		Exposure Point Total						1E-05					8E-02
	Exposure Medium Total							1E-05					8E-02
Medium Total								1E-05					8E-02
Receptor Total								1E-05					1E-01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	3E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-02

TABLE 9.27.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands											
			Benzo(a)pyrene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-08	- -	2E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			Arsenic	3E-07	- -	1E-07	- -	4E-07	Skin	3E-03	- -	1E-03	4E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-03	- -	N/A	2E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	4E-07	- -	2E-07	- -	6E-07		7E-03	- -	1E-03	8E-03
			Radionuclide Total										
		Exposure Point Total						6E-07					8E-03
	Exposure Medium Total							6E-07					8E-03
Medium Total								6E-07					8E-03
Surface Water	Surface Water	Wetlands (swimming)											
			Benzo(b)fluoranthene	2E-09	- -	N/A	- -	2E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	- -	3E-08	- -	3E-08	Liver	6E-06	- -	3E-04	3E-04
			Chrysene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			beta-BHC	1E-10	- -	3E-09	- -	3E-09	Liver	5E-07	- -	8E-06	9E-06
			Arsenic	3E-08	- -	N/A	- -	3E-08	Skin	3E-04	- -	N/A	3E-04
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	4E-04	- -	N/A	4E-04
			Cyanide	N/A	- -	N/A	- -	N/A	Endocrine/CNS	3E-04	- -	N/A	3E-04
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-04	- -	N/A	1E-04
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-04	- -	N/A	3E-04
			Chemical Total	4E-08	- -	3E-08	- -	7E-08		1E-03	- -	3E-04	2E-03
			Radionuclide Total										
		Exposure Point Total						7E-08					2E-03
	Exposure Medium Total							7E-08					2E-03
Medium Total								7E-08					2E-03
Sediment	Sediment	Wetlands											
			Benzo(a)anthracene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	4E-07	- -	2E-06	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	5E-08	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	4E-09	- -	2E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Carbazole	8E-11	- -	4E-10	- -	5E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	- -	3E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Indeno(1,2,3-cd)pyrene	3E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Aroclor-1260	2E-09	- -	9E-09	- -	1E-08	General Toxicity/Immune System	4E-04	- -	1E-03	2E-03

TABLE 9.27.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-03	- -	N/A	2E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-04	- -	N/A	3E-04
			Arsenic	3E-07	- -	3E-07	- -	6E-07	Skin	3E-03	- -	2E-03	5E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	2E-03	- -	N/A	2E-03
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	5E-03	- -	N/A	5E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	9E-04	- -	N/A	9E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	5E-04	- -	N/A	5E-04
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	6E-04	- -	N/A	6E-04
			Chemical Total	9E-07	- -	3E-06	- -	4E-06		2E-02	- -	3E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					2E-02
	Exposure Medium Total							4E-06					2E-02
Medium Total								4E-06					2E-02
Receptor Total								5E-06					3E-02

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 5E-06

Total Hazard Across All Media: 3E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	8E-03
Total Immune System HI =	2E-03
Total Kidney HI =	6E-04
Total Liver HI =	7E-03
Total CNS HI =	1E-03
Total Skin HI =	9E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	5E-03

TABLE 9.28.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-05	- -	1E-05	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	2E-06	- -	1E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	9E-05	2E-04
			Benzo(k)fluoranthene	3E-08	- -	2E-08	- -	5E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-06	- -	1E-06	- -	3E-06	Liver	2E-02	- -	1E-02	3E-02
			Carbazole	3E-09	- -	3E-09	- -	6E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	1E-08	- -	1E-08	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-06	- -	2E-06	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	6E-05	- -	4E-05	1E-04
			Indeno(1,2,3-cd)pyrene	8E-07	- -	7E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	3E-04	- -	2E-04	5E-04
			Aroclor-1248	3E-07	- -	2E-07	- -	5E-07	General Toxicity/Immune System	2E-02	- -	2E-02	3E-02
			Aroclor-1254	1E-07	- -	1E-07	- -	2E-07	General Toxicity/Immune System	8E-03	- -	8E-03	2E-02
			Aroclor-1260	2E-07	- -	2E-07	- -	3E-07	General Toxicity/Immune System	1E-02	- -	1E-02	2E-02
			Dieldrin	1E-06	- -	6E-07	- -	2E-06	Liver	3E-03	- -	2E-03	6E-03
			Dioxin TEQ	2E-06	- -	4E-07	- -	2E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	9E-03	- -	N/A	9E-03
			Arsenic	7E-06	- -	1E-06	- -	8E-06	Skin	4E-02	- -	8E-03	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	9E-03	- -	2E-03	1E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	9E-02	- -	N/A	9E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-02	- -	N/A	2E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	6E-03	- -	N/A	6E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-02	- -	N/A	4E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-03	- -	N/A	7E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	3E-02	- -	N/A	3E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Chemical Total	3E-05	- -	2E-05	- -	5E-05		3E-01	- -	6E-02	4E-01
			Radionuclide Total										
		Exposure Point Total						5E-05					4E-01
	Exposure Medium Total							5E-05					4E-01
	Indoor Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.28.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	4E-02	- -	4E-02
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	9E-03	- -	9E-03
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	3E-06	- -	- -	3E-06	Respiratory	- -	8E-02	- -	8E-02
			1,4-Dichlorobenzene	- -	4E-07	- -	- -	4E-07	Liver	- -	1E-04	- -	1E-04
			Benzene	- -	1E-04	- -	- -	1E-04	Immune System	- -	1E+00	- -	1E+00
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	5E-02	- -	5E-02
			Ethylbenzene	- -	1E-06	- -	- -	1E-06	Developmental	- -	1E-03	- -	1E-03
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	1E-05	- -	- -	1E-05	CNS	- -	2E-02	- -	2E-02
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	1E-01	- -	1E-01
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	2E-01	- -	2E-01
			Chemical Total	- -	1E-04	- -	- -	1E-04		- -	2E+00	- -	2E+00
			Radionuclide Total										
		Exposure Point Total						1E-04					2E+00
	Exposure Medium Total							1E-04					2E+00
Medium Total								2E-04					2E+00
Groundwater	Indoor Air	Nunes Parcel											
			Naphthalene	- -	2E-07	- -	- -	2E-07	Respiratory	- -	5E-03	- -	5E-03
			1,4-Dichlorobenzene	- -	5E-08	- -	- -	5E-08	Liver	- -	2E-05	- -	2E-05
			Benzene	- -	1E-06	- -	- -	1E-06	Immune System	- -	1E-02	- -	1E-02
			Chloroform	- -	2E-07	- -	- -	2E-07	Liver	- -	3E-04	- -	3E-04
			Ethylbenzene	- -	5E-07	- -	- -	5E-07	Developmental	- -	5E-04	- -	5E-04
			Vinyl chloride	- -	3E-07	- -	- -	3E-07	Liver	- -	2E-03	- -	2E-03
			Chemical Total	- -	2E-06	- -	- -	2E-06		- -	2E-02	- -	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								2E-04					2E+00

TABLE 9.28.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-04

Total Hazard Across All Media: 2E+00

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-02
Total GI System HI =	1E-01
Total Immune System HI =	1E+00
Total Kidney HI =	2E-02
Total Liver HI =	8E-02
Total CNS HI =	4E-01
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	1E-01
Total Developmental HI =	1E-02
Total Endocrine HI =	2E-02

TABLE 9.28.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	2E-07	- -	4E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-06	- -	4E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-07	- -	4E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	8E-05	1E-04
			Benzo(k)fluoranthene	4E-09	- -	8E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	- -	4E-07	- -	8E-07	Liver	9E-03	- -	1E-02	2E-02
			Carbazole	5E-10	- -	9E-10	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Chrysene	2E-09	- -	3E-09	- -	5E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	- -	5E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	1E-07	- -	2E-07	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	1E-04	- -	2E-04	3E-04
			Aroclor-1248	2E-08	- -	4E-08	- -	6E-08	General Toxicity/Immune System	8E-03	- -	1E-02	2E-02
			Aroclor-1254	9E-09	- -	2E-08	- -	3E-08	General Toxicity/Immune System	4E-03	- -	7E-03	1E-02
			Aroclor-1260	1E-08	- -	3E-08	- -	4E-08	General Toxicity/Immune System	5E-03	- -	1E-02	2E-02
			Dieldrin	2E-07	- -	2E-07	- -	4E-07	Liver	1E-03	- -	2E-03	3E-03
			Dioxin TEQ	3E-07	- -	1E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	4E-03	- -	N/A	4E-03
			Arsenic	1E-06	- -	4E-07	- -	1E-06	Skin	2E-02	- -	7E-03	3E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	2E-03	6E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	8E-04	- -	N/A	8E-04
			Chemical Total	5E-06	- -	6E-06	- -	1E-05		1E-01	- -	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
	Indoor Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.28.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	3E-02	- -	3E-02
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	8E-03	- -	8E-03
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	9E-07	- -	- -	9E-07	Respiratory	- -	7E-02	- -	7E-02
			1,4-Dichlorobenzene	- -	1E-07	- -	- -	1E-07	Liver	- -	1E-04	- -	1E-04
			Benzene	- -	3E-05	- -	- -	3E-05	Immune System	- -	1E+00	- -	1E+00
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	4E-02	- -	4E-02
			Ethylbenzene	- -	4E-07	- -	- -	4E-07	Developmental	- -	1E-03	- -	1E-03
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	3E-06	- -	- -	3E-06	CNS	- -	2E-02	- -	2E-02
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	9E-02	- -	9E-02
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	2E-01	- -	2E-01
			Chemical Total	- -	3E-05	- -	- -	3E-05		- -	1E+00	- -	1E+00
			Radionuclide Total										
		Exposure Point Total						3E-05					1E+00
	Exposure Medium Total							3E-05					1E+00
Medium Total								5E-05					2E+00
Groundwater	Indoor Air	Nunes Parcel											
			Naphthalene	- -	6E-08	- -	- -	6E-08	Respiratory	- -	5E-03	- -	5E-03
			1,4-Dichlorobenzene	- -	2E-08	- -	- -	2E-08	Liver	- -	1E-05	- -	1E-05
			Benzene	- -	3E-07	- -	- -	3E-07	Immune System	- -	1E-02	- -	1E-02
			Chloroform	- -	7E-08	- -	- -	7E-08	Liver	- -	2E-04	- -	2E-04
			Ethylbenzene	- -	1E-08	- -	- -	1E-08	Developmental	- -	3E-05	- -	3E-05
			Vinyl chloride	- -	9E-08	- -	- -	9E-08	Liver	- -	2E-03	- -	2E-03
			Chemical Total	- -	5E-07	- -	- -	5E-07		- -	2E-02	- -	2E-02
			Radionuclide Total										
		Exposure Point Total						5E-07					2E-02
	Exposure Medium Total							5E-07					2E-02
Medium Total								5E-07					2E-02
Receptor Total								5E-05					2E+00

TABLE 9.28.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-05

Total Hazard Across All Media: 2E+00

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	6E-02
Total Immune System HI =	1E+00
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	3E-01
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	1E-01
Total Developmental HI =	5E-03
Total Endocrine HI =	1E-02

TABLE 9.29.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	3E-07	- -	3E-07	- -	6E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-06	- -	3E-06	- -	6E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-07	- -	4E-07	- -	8E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	2E-08	- -	1E-08	- -	3E-08	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	- -	3E-09	- -	7E-09	Liver	4E-05	- -	3E-05	7E-05
			Carbazole	1E-09	- -	9E-10	- -	2E-09	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	- -	4E-07	- -	9E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	3E-05	7E-05
			Indeno(1,2,3-cd)pyrene	3E-07	- -	2E-07	- -	5E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	4E-05	- -	3E-05	7E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	4E-07	- -	3E-07	- -	7E-07	General Toxicity/Immune System	3E-02	- -	2E-02	5E-02
			Dieldrin	3E-06	- -	2E-06	- -	4E-06	Liver	9E-03	- -	6E-03	1E-02
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	8E-03	- -	N/A	8E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	3E-03	- -	N/A	3E-03
			Arsenic	6E-06	- -	1E-06	- -	7E-06	Skin	4E-02	- -	8E-03	5E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	1E-03	5E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-02	- -	N/A	7E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	1E-02	- -	N/A	1E-02
			Copper	N/A	- -	N/A	- -	N/A	GI System	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	2E-02	- -	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	7E-03	- -	N/A	7E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-03	- -	N/A	8E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-03	- -	N/A	2E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	4E-04	- -	N/A	4E-04
			Chemical Total	1E-05	- -	7E-06	- -	2E-05		2E-01	- -	4E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					3E-01
	Exposure Medium Total							2E-05					3E-01
Medium Total								2E-05					3E-01
Receptor Total								2E-05					3E-01

TABLE 9.29.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-05

Total Hazard Across All Media: 3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	1E-01
Total Immune System HI =	5E-02
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	1E-02

TABLE 9.29.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	5E-08	- -	9E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	5E-07	- -	8E-07	- -	1E-06	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Benzo(k)fluoranthene	3E-09	- -	5E-09	- -	7E-09	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-10	- -	9E-10	- -	2E-09	Liver	2E-05	- -	2E-05	4E-05
			Carbazole	2E-10	- -	3E-10	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	- -	1E-07	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	- -	7E-08	- -	1E-07	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	3E-05	5E-05
			Aroclor-1248	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1254	N/A	- -	N/A	- -	N/A	General Toxicity/Immune System	N/A	- -	N/A	N/A
			Aroclor-1260	3E-08	- -	5E-08	- -	8E-08	General Toxicity/Immune System	1E-02	- -	2E-02	3E-02
			Dieldrin	4E-07	- -	5E-07	- -	9E-07	Liver	4E-03	- -	5E-03	9E-03
			Dioxin TEQ	N/A	- -	N/A	- -	N/A	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-03	- -	N/A	3E-03
			Antimony	N/A	- -	N/A	- -	N/A	General Toxicity	1E-03	- -	N/A	1E-03
			Arsenic	1E-06	- -	4E-07	- -	1E-06	Skin	2E-02	- -	7E-03	2E-02
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	9E-04	3E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	3E-02	- -	N/A	3E-02
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Copper	N/A	- -	N/A	- -	N/A	GI System	1E-03	- -	N/A	1E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	1E-02	- -	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	3E-03	- -	N/A	3E-03
			Thallium	N/A	- -	N/A	- -	N/A	Blood	1E-03	- -	N/A	1E-03
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	N/A	2E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	2E-06	- -	2E-06	- -	4E-06		1E-01	- -	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01
Medium Total								4E-06					1E-01
Receptor Total								4E-06					1E-01

TABLE 9.29.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 4E-06

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	4E-02
Total Immune System HI =	3E-02
Total Kidney HI =	4E-03
Total Liver HI =	2E-02
Total CNS HI =	6E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	6E-03

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	2E-08	2E-13	8E-09	- -	3E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	2E-07	2E-12	8E-08	- -	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	3E-08	2E-13	1E-08	- -	4E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	1E-09	9E-14	4E-10	- -	2E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-10	N/A	8E-11	- -	4E-10	Liver	7E-05	N/A	2E-05	9E-05
			Carbazole	7E-11	N/A	3E-11	- -	9E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	3E-08	3E-13	1E-08	- -	4E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	7E-05	N/A	2E-05	9E-05
			Indeno(1,2,3-cd)pyrene	2E-08	1E-13	7E-09	- -	2E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	6E-06	3E-08	2E-06	9E-06
			Aroclor-1248	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	2E-08	4E-13	1E-08	- -	3E-08	General Toxicity/Immune System	1E-02	N/A	6E-03	2E-02
			Dieldrin	2E-07	2E-12	5E-08	- -	2E-07	Liver	1E-02	N/A	4E-03	2E-02
			Dioxin TEQ	N/A	N/A	N/A	- -	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Antimony	N/A	N/A	N/A	- -	N/A	General Toxicity	5E-03	N/A	N/A	5E-03
			Arsenic	4E-07	6E-11	4E-08	- -	4E-07	Skin	6E-02	7E-04	6E-03	7E-02
			Cadmium (other media)	N/A	8E-12	N/A	- -	8E-12	Kidney	6E-03	3E-05	7E-04	7E-03
			Chromium	N/A	2E-08	N/A	- -	2E-08	GI System	4E-02	6E-05	N/A	4E-02
			Cobalt	N/A	5E-11	N/A	- -	5E-11	Endocrine	2E-03	2E-05	N/A	2E-03
			Copper	N/A	N/A	N/A	- -	N/A	GI System	5E-03	N/A	N/A	5E-03
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	4E-02	N/A	N/A	4E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	1E-02	8E-04	N/A	1E-02
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	1E-02	2E-06	N/A	1E-02
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	4E-04	N/A	N/A	4E-04
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	6E-04	N/A	N/A	6E-04
			Chemical Total	9E-07	2E-08	2E-07	- -	1E-06		2E-01	2E-03	2E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-01
	Exposure Medium Total							1E-06					2E-01
Medium Total								1E-06					2E-01
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	3E-10	- -	N/A	- -	3E-10	Liver	2E-05	- -	N/A	2E-05
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	4E-05	- -	N/A	4E-05

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	2E-05	- -	N/A	2E-05
			4-Chloroaniline	1E-09	- -	N/A	- -	1E-09	Spleen	9E-05	- -	N/A	9E-05
			Atrazine	3E-09	- -	N/A	- -	3E-09	General Toxicity/Cardiovascular	2E-05	- -	N/A	2E-05
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	N/A	3E-06
			Benzo(a)anthracene	8E-11	- -	N/A	- -	8E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-11	- -	N/A	- -	7E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			bis(2-Ethylhexyl)phthalate	2E-10	- -	9E-10	- -	1E-09	Liver	5E-05	- -	2E-04	3E-04
			Carbazole	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	1E-04	2E-04
			Indeno(1,2,3-cd)pyrene	4E-10	- -	N/A	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	1E-05	- -	N/A	1E-05
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			1,2,4-Trichlorobenzene	3E-12	- -	N/A	- -	3E-12	Endocrine	6E-06	- -	N/A	6E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	2E-06	- -	N/A	2E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	8E-06	- -	N/A	8E-06
			1,4-Dichlorobenzene	2E-11	- -	N/A	- -	2E-11	Liver	3E-06	- -	N/A	3E-06
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	5E-07	- -	N/A	5E-07
			Benzene	2E-08	- -	N/A	- -	2E-08	Immune System	6E-03	- -	N/A	6E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	7E-05	- -	N/A	7E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	5E-06	- -	N/A	5E-06
			Chloroform	7E-11	- -	N/A	- -	7E-11	Liver	2E-05	- -	N/A	2E-05
			Ethylbenzene	5E-11	- -	N/A	- -	5E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	N/A	2E-05
			Methyl tert-butyl ether	1E-11	- -	N/A	- -	1E-11	Liver	1E-06	- -	N/A	1E-06
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			Trichloroethene	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	2E-09	- -	N/A	- -	2E-09	Liver	5E-05	- -	N/A	5E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	2E-06	- -	N/A	2E-06
			Aroclor-1242	2E-09	- -	N/A	- -	2E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			Aroclor-1248	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1254	4E-09	- -	N/A	- -	4E-09	General Toxicity/Immune System	7E-03	- -	N/A	7E-03
			4,4'-DDD	4E-12	- -	N/A	- -	4E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	5E-12	- -	N/A	- -	5E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	5E-12	- -	N/A	- -	5E-12	Liver	2E-06	- -	N/A	2E-06
			Aldrin	4E-10	- -	N/A	- -	4E-10	Liver	5E-05	- -	N/A	5E-05
			alpha-BHC	8E-11	- -	N/A	- -	8E-11	Liver	1E-07	- -	N/A	1E-07

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	- -	N/A	- -	3E-11	Liver/Kidney	7E-06	- -	N/A	7E-06
			Heptachlor	7E-11	- -	N/A	- -	7E-11	Liver	2E-06	- -	N/A	2E-06
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-04	- -	N/A	3E-04
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-02	- -	N/A	2E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Silver	N/A	- -	N/A	- -	N/A	Skin	1E-04	- -	N/A	1E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	2E-07	- -	9E-10	- -	2E-07		8E-02	- -	4E-04	8E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					8E-02
	Exposure Medium Total							2E-07					8E-02
Medium Total								2E-07					8E-02
Receptor Total								1E-06					3E-01

- - = Not Evaluated
N/A = Not Applicable
Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 1E-06

Total Hazard Across All Media: 3E-01

Total Blood HI =	9E-03
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	4E-02
Total GI System HI =	9E-02
Total Immune System HI =	4E-02
Total Kidney HI =	1E-02
Total Liver HI =	6E-02
Total CNS HI =	3E-02
Total Skin HI =	9E-02
Total Spleen HI =	9E-05
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	8E-03

TABLE 9.30.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield											
			Benzo(a)anthracene	1E-08	8E-14	4E-09	- -	1E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-07	8E-13	4E-08	- -	1E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	1E-08	1E-13	6E-09	- -	2E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	6E-10	4E-14	2E-10	- -	8E-10	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-10	N/A	4E-11	- -	2E-10	Liver	3E-05	N/A	1E-05	4E-05
			Carbazole	3E-11	N/A	1E-11	- -	5E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	1E-13	6E-09	- -	2E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	3E-05	N/A	1E-05	4E-05
			Indeno(1,2,3-cd)pyrene	9E-09	7E-14	3E-09	- -	1E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	3E-06	2E-08	1E-06	4E-06
			Aroclor-1248	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	6E-09	2E-13	3E-09	- -	8E-09	General Toxicity/Immune System	7E-03	N/A	3E-03	1E-02
			Dieldrin	8E-08	1E-12	2E-08	- -	1E-07	Liver	7E-03	N/A	2E-03	9E-03
			Dioxin TEQ	N/A	N/A	N/A	- -	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	6E-03	N/A	N/A	6E-03
			Antimony	N/A	N/A	N/A	- -	N/A	General Toxicity	2E-03	N/A	N/A	2E-03
			Arsenic	2E-07	3E-11	2E-08	- -	2E-07	Skin	3E-02	3E-04	3E-03	3E-02
			Cadmium (other media)	N/A	4E-12	N/A	- -	4E-12	Kidney	3E-03	2E-05	4E-04	3E-03
			Chromium	N/A	1E-08	N/A	- -	1E-08	GI System	2E-02	3E-05	N/A	2E-02
			Cobalt	N/A	2E-11	N/A	- -	2E-11	Endocrine	1E-03	9E-06	N/A	1E-03
			Copper	N/A	N/A	N/A	- -	N/A	GI System	3E-03	N/A	N/A	3E-03
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	2E-02	N/A	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	5E-03	4E-04	N/A	6E-03
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	6E-03	1E-06	N/A	6E-03
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	2E-04	N/A	N/A	2E-04
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	3E-03	N/A	N/A	3E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	3E-04	N/A	N/A	3E-04
			Chemical Total	4E-07	1E-08	1E-07	- -	6E-07		1E-01	8E-04	8E-03	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-07					1E-01
	Exposure Medium Total							6E-07					1E-01
Medium Total								6E-07					1E-01
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	1E-10	- -	N/A	- -	1E-10	Liver	8E-06	- -	N/A	8E-06
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	2E-05	- -	N/A	2E-05

TABLE 9.30.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	8E-06	- -	N/A	8E-06
			4-Chloroaniline	5E-10	- -	N/A	- -	5E-10	Spleen	4E-05	- -	N/A	4E-05
			Atrazine	7E-10	- -	N/A	- -	7E-10	General Toxicity/Cardiovascular	6E-06	- -	N/A	6E-06
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			Benzo(a)anthracene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	6E-07	- -	N/A	6E-07
			bis(2-Ethylhexyl)phthalate	1E-10	- -	4E-10	- -	6E-10	Liver	3E-05	- -	1E-04	1E-04
			Carbazole	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	7E-05	8E-05
			Indeno(1,2,3-cd)pyrene	2E-10	- -	N/A	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	5E-06	- -	N/A	5E-06
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-07	- -	N/A	8E-07
			1,2,4-Trichlorobenzene	1E-12	- -	N/A	- -	1E-12	Endocrine	3E-06	- -	N/A	3E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	1E-06	- -	N/A	1E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	2E-06	- -	N/A	2E-06
			1,4-Dichlorobenzene	9E-12	- -	N/A	- -	9E-12	Liver	2E-06	- -	N/A	2E-06
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	3E-07	- -	N/A	3E-07
			Benzene	1E-08	- -	N/A	- -	1E-08	Immune System	3E-03	- -	N/A	3E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	3E-05	- -	N/A	3E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	6E-07	- -	N/A	6E-07
			Chloroform	3E-11	- -	N/A	- -	3E-11	Liver	8E-06	- -	N/A	8E-06
			Ethylbenzene	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	2E-06	- -	N/A	2E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	N/A	1E-05
			Methyl tert-butyl ether	5E-12	- -	N/A	- -	5E-12	Liver	7E-07	- -	N/A	7E-07
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	9E-07	- -	N/A	9E-07
			Trichloroethene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	8E-10	- -	N/A	- -	8E-10	Liver	3E-05	- -	N/A	3E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	1E-06	- -	N/A	1E-06
			Aroclor-1242	6E-10	- -	N/A	- -	6E-10	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1248	9E-11	- -	N/A	- -	9E-11	General Toxicity/Immune System	3E-04	- -	N/A	3E-04
			Aroclor-1254	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			4,4'-DDD	1E-12	- -	N/A	- -	1E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	2E-12	- -	N/A	- -	2E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	2E-12	- -	N/A	- -	2E-12	Liver	7E-07	- -	N/A	7E-07
			Aldrin	6E-11	- -	N/A	- -	6E-11	Liver	8E-06	- -	N/A	8E-06
			alpha-BHC	2E-11	- -	N/A	- -	2E-11	Liver	3E-08	- -	N/A	3E-08

TABLE 9.30.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Heptachlor	1E-11	- -	N/A	- -	1E-11	Liver	5E-07	- -	N/A	5E-07
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-04	- -	N/A	2E-04
			Arsenic	8E-08	- -	N/A	- -	8E-08	Skin	1E-02	- -	N/A	1E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	N/A	5E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-05	- -	N/A	7E-05
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	5E-05	- -	N/A	5E-05
			Silver	N/A	- -	N/A	- -	N/A	Skin	5E-05	- -	N/A	5E-05
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	9E-08	- -	4E-10	- -	9E-08		4E-02	- -	2E-04	4E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					4E-02
	Exposure Medium Total							9E-08					4E-02
Medium Total								9E-08					4E-02
Receptor Total								6E-07					2E-01

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 6E-07

Total Hazard Across All Media: 2E-01

Total Blood HI =	9E-03
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	2E-02
Total GI System HI =	4E-02
Total Immune System HI =	2E-02
Total Kidney HI =	7E-03
Total Liver HI =	3E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	N/A
Total Developmental HI =	6E-03
Total Endocrine HI =	4E-03

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	4E-08	3E-13	2E-08	- -	5E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	4E-07	3E-12	2E-07	- -	6E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	6E-08	4E-13	2E-08	- -	8E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	2E-09	1E-13	7E-10	- -	2E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-09	N/A	9E-10	- -	4E-09	Liver	7E-04	N/A	2E-04	9E-04
			Carbazole	1E-10	N/A	5E-11	- -	2E-10	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	7E-13	3E-08	- -	1E-07	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	4E-05	N/A	1E-05	5E-05
			Indeno(1,2,3-cd)pyrene	3E-08	2E-13	1E-08	- -	4E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	1E-05	7E-08	5E-06	2E-05
			Aroclor-1248	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	3E-08	4E-13	1E-08	- -	4E-08	General Toxicity/Immune System	1E-02	N/A	6E-03	2E-02
			Dieldrin	2E-07	3E-12	6E-08	- -	2E-07	Liver	2E-02	N/A	5E-03	2E-02
			Dioxin TEQ	N/A	N/A	N/A	- -	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Antimony	N/A	N/A	N/A	- -	N/A	General Toxicity	N/A	N/A	N/A	N/A
			Arsenic	4E-07	7E-11	4E-08	- -	5E-07	Skin	7E-02	7E-04	6E-03	8E-02
			Cadmium (other media)	N/A	2E-11	N/A	- -	2E-11	Kidney	1E-02	8E-05	2E-03	2E-02
			Chromium	N/A	2E-08	N/A	- -	2E-08	GI System	3E-02	4E-05	N/A	3E-02
			Cobalt	N/A	N/A	N/A	- -	N/A	Endocrine	N/A	N/A	N/A	N/A
			Copper	N/A	N/A	N/A	- -	N/A	GI System	8E-03	N/A	N/A	8E-03
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	5E-02	N/A	N/A	5E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	2E-02	2E-03	N/A	2E-02
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	8E-03	1E-06	N/A	8E-03
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	3E-03	N/A	N/A	3E-03
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	1E-03	N/A	N/A	1E-03
			Chemical Total	1E-06	2E-08	3E-07	- -	2E-06		3E-01	3E-03	2E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-06					3E-01
	Exposure Medium Total							2E-06					3E-01
Medium Total								2E-06					3E-01
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	3E-10	- -	N/A	- -	3E-10	Liver	2E-05	- -	N/A	2E-05
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	4E-05	- -	N/A	4E-05

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	2E-05	- -	N/A	2E-05
			4-Chloroaniline	1E-09	- -	N/A	- -	1E-09	Spleen	9E-05	- -	N/A	9E-05
			Atrazine	3E-09	- -	N/A	- -	3E-09	General Toxicity/Cardiovascular	2E-05	- -	N/A	2E-05
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	N/A	3E-06
			Benzo(a)anthracene	8E-11	- -	N/A	- -	8E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-11	- -	N/A	- -	7E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			bis(2-Ethylhexyl)phthalate	2E-10	- -	9E-10	- -	1E-09	Liver	5E-05	- -	2E-04	3E-04
			Carbazole	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	1E-04	2E-04
			Indeno(1,2,3-cd)pyrene	4E-10	- -	N/A	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	1E-05	- -	N/A	1E-05
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			1,2,4-Trichlorobenzene	3E-12	- -	N/A	- -	3E-12	Endocrine	6E-06	- -	N/A	6E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	2E-06	- -	N/A	2E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	8E-06	- -	N/A	8E-06
			1,4-Dichlorobenzene	2E-11	- -	N/A	- -	2E-11	Liver	3E-06	- -	N/A	3E-06
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	5E-07	- -	N/A	5E-07
			Benzene	2E-08	- -	N/A	- -	2E-08	Immune System	6E-03	- -	N/A	6E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	7E-05	- -	N/A	7E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	5E-06	- -	N/A	5E-06
			Chloroform	7E-11	- -	N/A	- -	7E-11	Liver	2E-05	- -	N/A	2E-05
			Ethylbenzene	5E-11	- -	N/A	- -	5E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	N/A	2E-05
			Methyl tert-butyl ether	1E-11	- -	N/A	- -	1E-11	Liver	1E-06	- -	N/A	1E-06
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			Trichloroethene	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	2E-09	- -	N/A	- -	2E-09	Liver	5E-05	- -	N/A	5E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	2E-06	- -	N/A	2E-06
			Aroclor-1242	2E-09	- -	N/A	- -	2E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			Aroclor-1248	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1254	4E-09	- -	N/A	- -	4E-09	General Toxicity/Immune System	7E-03	- -	N/A	7E-03
			4,4'-DDD	4E-12	- -	N/A	- -	4E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	5E-12	- -	N/A	- -	5E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	5E-12	- -	N/A	- -	5E-12	Liver	2E-06	- -	N/A	2E-06
			Aldrin	4E-10	- -	N/A	- -	4E-10	Liver	5E-05	- -	N/A	5E-05
			alpha-BHC	8E-11	- -	N/A	- -	8E-11	Liver	1E-07	- -	N/A	1E-07

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	- -	N/A	- -	3E-11	Liver/Kidney	7E-06	- -	N/A	7E-06
			Heptachlor	7E-11	- -	N/A	- -	7E-11	Liver	2E-06	- -	N/A	2E-06
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-04	- -	N/A	3E-04
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-02	- -	N/A	2E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Silver	N/A	- -	N/A	- -	N/A	Skin	1E-04	- -	N/A	1E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	2E-07	- -	9E-10	- -	2E-07		8E-02	- -	4E-04	8E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					8E-02
	Exposure Medium Total							2E-07					8E-02
Medium Total								2E-07					8E-02
Receptor Total								2E-06					4E-01

- - = Not Evaluated
N/A = Not Applicable
Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-06

Total Hazard Across All Media: 4E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	3E-02
Total GI System HI =	9E-02
Total Immune System HI =	4E-02
Total Kidney HI =	2E-02
Total Liver HI =	8E-02
Total CNS HI =	4E-02
Total Skin HI =	1E-01
Total Spleen HI =	9E-05
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	6E-03

TABLE 9.31.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank											
			Benzo(a)anthracene	2E-08	1E-13	6E-09	- -	2E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-07	1E-12	6E-08	- -	2E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	2E-08	2E-13	8E-09	- -	3E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	8E-10	7E-14	3E-10	- -	1E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-10	N/A	9E-11	- -	4E-10	Liver	8E-05	N/A	2E-05	1E-04
			Carbazole	6E-11	N/A	2E-11	- -	9E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	3E-08	3E-13	1E-08	- -	4E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	2E-05	N/A	5E-06	2E-05
			Indeno(1,2,3-cd)pyrene	9E-09	7E-14	3E-09	- -	1E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	5E-06	3E-08	2E-06	7E-06
			Aroclor-1248	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	- -	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	4E-09	1E-13	1E-09	- -	5E-09	General Toxicity/Immune System	4E-03	N/A	2E-03	6E-03
			Dieldrin	3E-08	4E-13	8E-09	- -	3E-08	Liver	2E-03	N/A	7E-04	3E-03
			Dioxin TEQ	N/A	N/A	N/A	- -	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	6E-03	N/A	N/A	6E-03
			Antimony	N/A	N/A	N/A	- -	N/A	General Toxicity	N/A	N/A	N/A	N/A
			Arsenic	2E-07	3E-11	2E-08	- -	2E-07	Skin	3E-02	3E-04	2E-03	3E-02
			Cadmium (other media)	N/A	5E-12	N/A	- -	5E-12	Kidney	4E-03	2E-05	5E-04	4E-03
			Chromium	N/A	6E-09	N/A	- -	6E-09	GI System	1E-02	2E-05	N/A	1E-02
			Cobalt	N/A	N/A	N/A	- -	N/A	Endocrine	N/A	N/A	N/A	N/A
			Copper	N/A	N/A	N/A	- -	N/A	GI System	3E-03	N/A	N/A	3E-03
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	2E-02	N/A	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	6E-03	4E-04	N/A	6E-03
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	3E-03	5E-07	N/A	3E-03
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	1E-03	N/A	N/A	1E-03
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	2E-03	N/A	N/A	2E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	4E-04	N/A	N/A	4E-04
			Chemical Total	4E-07	6E-09	1E-07	- -	5E-07		9E-02	7E-04	5E-03	9E-02
			Radionuclide Total										
		Exposure Point Total						5E-07					9E-02
	Exposure Medium Total							5E-07					9E-02
Medium Total								5E-07					9E-02
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	1E-10	- -	N/A	- -	1E-10	Liver	8E-06	- -	N/A	8E-06
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	2E-05	- -	N/A	2E-05

TABLE 9.31.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	8E-06	- -	N/A	8E-06
			4-Chloroaniline	5E-10	- -	N/A	- -	5E-10	Spleen	4E-05	- -	N/A	4E-05
			Atrazine	7E-10	- -	N/A	- -	7E-10	General Toxicity/Cardiovascular	6E-06	- -	N/A	6E-06
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			Benzo(a)anthracene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	6E-07	- -	N/A	6E-07
			bis(2-Ethylhexyl)phthalate	1E-10	- -	4E-10	- -	6E-10	Liver	3E-05	- -	1E-04	1E-04
			Carbazole	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	7E-05	8E-05
			Indeno(1,2,3-cd)pyrene	2E-10	- -	N/A	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	5E-06	- -	N/A	5E-06
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-07	- -	N/A	8E-07
			1,2,4-Trichlorobenzene	1E-12	- -	N/A	- -	1E-12	Endocrine	3E-06	- -	N/A	3E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	1E-06	- -	N/A	1E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	2E-06	- -	N/A	2E-06
			1,4-Dichlorobenzene	9E-12	- -	N/A	- -	9E-12	Liver	2E-06	- -	N/A	2E-06
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	3E-07	- -	N/A	3E-07
			Benzene	1E-08	- -	N/A	- -	1E-08	Immune System	3E-03	- -	N/A	3E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	3E-05	- -	N/A	3E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	6E-07	- -	N/A	6E-07
			Chloroform	3E-11	- -	N/A	- -	3E-11	Liver	8E-06	- -	N/A	8E-06
			Ethylbenzene	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	2E-06	- -	N/A	2E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	N/A	1E-05
			Methyl tert-butyl ether	5E-12	- -	N/A	- -	5E-12	Liver	7E-07	- -	N/A	7E-07
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	9E-07	- -	N/A	9E-07
			Trichloroethene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	8E-10	- -	N/A	- -	8E-10	Liver	3E-05	- -	N/A	3E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	1E-06	- -	N/A	1E-06
			Aroclor-1242	6E-10	- -	N/A	- -	6E-10	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1248	9E-11	- -	N/A	- -	9E-11	General Toxicity/Immune System	3E-04	- -	N/A	3E-04
			Aroclor-1254	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			4,4'-DDD	1E-12	- -	N/A	- -	1E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	2E-12	- -	N/A	- -	2E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	2E-12	- -	N/A	- -	2E-12	Liver	7E-07	- -	N/A	7E-07
			Aldrin	6E-11	- -	N/A	- -	6E-11	Liver	8E-06	- -	N/A	8E-06
			alpha-BHC	2E-11	- -	N/A	- -	2E-11	Liver	3E-08	- -	N/A	3E-08

TABLE 9.31.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Heptachlor	1E-11	- -	N/A	- -	1E-11	Liver	5E-07	- -	N/A	5E-07
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-04	- -	N/A	2E-04
			Arsenic	8E-08	- -	N/A	- -	8E-08	Skin	1E-02	- -	N/A	1E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	N/A	5E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-05	- -	N/A	7E-05
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	5E-05	- -	N/A	5E-05
			Silver	N/A	- -	N/A	- -	N/A	Skin	5E-05	- -	N/A	5E-05
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	9E-08	- -	4E-10	- -	9E-08		4E-02	- -	2E-04	4E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					4E-02
	Exposure Medium Total							9E-08					4E-02
Medium Total								9E-08					4E-02
Receptor Total								6E-07					1E-01

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 6E-07

Total Hazard Across All Media: 1E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	1E-02
Total GI System HI =	4E-02
Total Immune System HI =	1E-02
Total Kidney HI =	7E-03
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	4E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	N/A
Total Developmental HI =	6E-03
Total Endocrine HI =	3E-03

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	9E-08	7E-13	3E-08	- -	1E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	9E-07	7E-12	3E-07	- -	1E-06	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	1E-07	8E-13	4E-08	- -	1E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	- -	N/A	Kidney	2E-05	9E-08	7E-06	2E-05
			Benzo(k)fluoranthene	2E-09	1E-13	7E-10	- -	3E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-07	N/A	4E-08	- -	2E-07	Liver	3E-02	N/A	1E-02	4E-02
			Carbazole	2E-10	N/A	8E-11	- -	3E-10	N/A	N/A	N/A	N/A	N/A
			Chrysene	7E-10	6E-14	3E-10	- -	1E-09	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	1E-12	5E-08	- -	2E-07	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	1E-04	N/A	3E-05	1E-04
			Indeno(1,2,3-cd)pyrene	5E-08	4E-13	2E-08	- -	7E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	5E-05	2E-07	2E-05	6E-05
			Aroclor-1248	2E-08	2E-13	7E-09	- -	2E-08	General Toxicity/Immune System	1E-02	N/A	4E-03	1E-02
			Aroclor-1254	8E-09	1E-13	3E-09	- -	1E-08	General Toxicity/Immune System	5E-03	N/A	2E-03	7E-03
			Aroclor-1260	1E-08	2E-13	5E-09	- -	2E-08	General Toxicity/Immune System	7E-03	N/A	3E-03	9E-03
			Dieldrin	6E-08	1E-12	2E-08	- -	8E-08	Liver	6E-03	N/A	2E-03	7E-03
			Dioxin TEQ	1E-07	2E-12	1E-08	- -	1E-07	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Arsenic	4E-07	7E-11	4E-08	- -	5E-07	Skin	7E-02	7E-04	6E-03	8E-02
			Cadmium (other media)	N/A	2E-11	N/A	- -	2E-11	Kidney	1E-02	8E-05	2E-03	2E-02
			Chromium	N/A	3E-08	N/A	- -	3E-08	GI System	5E-02	8E-05	N/A	5E-02
			Cobalt	N/A	8E-11	N/A	- -	8E-11	Endocrine	4E-03	3E-05	N/A	4E-03
			Copper	N/A	N/A	N/A	- -	N/A	GI System	1E-02	N/A	N/A	1E-02
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	7E-02	N/A	N/A	7E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	2E-02	1E-03	N/A	2E-02
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	1E-02	2E-06	N/A	1E-02
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	5E-03	N/A	N/A	5E-03
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	3E-03	N/A	N/A	3E-03
			Chemical Total	2E-06	3E-08	6E-07	- -	3E-06		3E-01	2E-03	3E-02	4E-01
			Radionuclide Total										
		Exposure Point Total						3E-06					4E-01
	Exposure Medium Total							3E-06					4E-01
	Outdoor (Trench) Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	1E-02	- -	1E-02
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	3E-03	- -	3E-03
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	4E-08	- -	- -	4E-08	Respiratory	- -	3E-02	- -	3E-02
			1,4-Dichlorobenzene	- -	5E-09	- -	- -	5E-09	Liver	- -	1E-05	- -	1E-05
			Benzene	- -	2E-06	- -	- -	2E-06	Immune System	- -	2E-01	- -	2E-01
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	3E-02	- -	3E-02
			Ethylbenzene	- -	2E-08	- -	- -	2E-08	Developmental	- -	6E-04	- -	6E-04
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	2E-07	- -	- -	2E-07	CNS	- -	8E-03	- -	8E-03
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	5E-02	- -	5E-02
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	3E-02	- -	3E-02
			Chemical Total	- -	2E-06	- -	- -	2E-06		- -	3E-01	- -	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-06					3E-01
	Exposure Medium Total							2E-06					3E-01
Medium Total								5E-06					7E-01
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	3E-10	- -	N/A	- -	3E-10	Liver	2E-05	- -	N/A	2E-05
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	4E-05	- -	N/A	4E-05
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	2E-05	- -	N/A	2E-05
			4-Chloroaniline	1E-09	- -	N/A	- -	1E-09	Spleen	9E-05	- -	N/A	9E-05
			Atrazine	3E-09	- -	N/A	- -	3E-09	General Toxicity/Cardiovascular	2E-05	- -	N/A	2E-05
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	3E-06	- -	N/A	3E-06
			Benzo(a)anthracene	8E-11	- -	N/A	- -	8E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	3E-09	- -	N/A	- -	3E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	7E-11	- -	N/A	- -	7E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			bis(2-Ethylhexyl)phthalate	2E-10	- -	9E-10	- -	1E-09	Liver	5E-05	- -	2E-04	3E-04
			Carbazole	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	3E-05	- -	1E-04	2E-04
			Indeno(1,2,3-cd)pyrene	4E-10	- -	N/A	- -	4E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	1E-05	- -	N/A	1E-05
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			1,2,4-Trichlorobenzene	3E-12	- -	N/A	- -	3E-12	Endocrine	6E-06	- -	N/A	6E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	2E-06	- -	N/A	2E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	8E-06	- -	N/A	8E-06
			1,4-Dichlorobenzene	2E-11	- -	N/A	- -	2E-11	Liver	3E-06	- -	N/A	3E-06

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	5E-07	- -	N/A	5E-07
			Benzene	2E-08	- -	N/A	- -	2E-08	Immune System	6E-03	- -	N/A	6E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	7E-05	- -	N/A	7E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	5E-06	- -	N/A	5E-06
			Chloroform	7E-11	- -	N/A	- -	7E-11	Liver	2E-05	- -	N/A	2E-05
			Ethylbenzene	5E-11	- -	N/A	- -	5E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	2E-05	- -	N/A	2E-05
			Methyl tert-butyl ether	1E-11	- -	N/A	- -	1E-11	Liver	1E-06	- -	N/A	1E-06
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	2E-06	- -	N/A	2E-06
			Trichloroethene	3E-11	- -	N/A	- -	3E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	2E-09	- -	N/A	- -	2E-09	Liver	5E-05	- -	N/A	5E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	2E-06	- -	N/A	2E-06
			Aroclor-1242	2E-09	- -	N/A	- -	2E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			Aroclor-1248	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1254	4E-09	- -	N/A	- -	4E-09	General Toxicity/Immune System	7E-03	- -	N/A	7E-03
			4,4'-DDD	4E-12	- -	N/A	- -	4E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	5E-12	- -	N/A	- -	5E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	5E-12	- -	N/A	- -	5E-12	Liver	2E-06	- -	N/A	2E-06
			Aldrin	4E-10	- -	N/A	- -	4E-10	Liver	5E-05	- -	N/A	5E-05
			alpha-BHC	8E-11	- -	N/A	- -	8E-11	Liver	1E-07	- -	N/A	1E-07
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	- -	N/A	- -	3E-11	Liver/Kidney	7E-06	- -	N/A	7E-06
			Heptachlor	7E-11	- -	N/A	- -	7E-11	Liver	2E-06	- -	N/A	2E-06
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	3E-04	- -	N/A	3E-04
			Arsenic	2E-07	- -	N/A	- -	2E-07	Skin	2E-02	- -	N/A	2E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	N/A	1E-03
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E-04	- -	N/A	1E-04
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	6E-03	- -	N/A	6E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	8E-03	- -	N/A	8E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	1E-02	- -	N/A	1E-02
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	1E-04	- -	N/A	1E-04
			Silver	N/A	- -	N/A	- -	N/A	Skin	1E-04	- -	N/A	1E-04
			Thallium	N/A	- -	N/A	- -	N/A	Blood	8E-03	- -	N/A	8E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-04	- -	N/A	2E-04
			Chemical Total	2E-07	- -	9E-10	- -	2E-07		8E-02	- -	4E-04	8E-02

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Radionuclide Total										
		Exposure Point Total						2E-07					8E-02
	Exposure Medium Total							2E-07					8E-02
	Outdoor (Trench) Air	Nunes Parcel	Benzene	- -	3E-09	- -	- -	3E-09	Immune System	- -	3E-04	- -	3E-04
			Chemical Total	- -	3E-09	- -	- -	3E-09		- -	3E-04	- -	3E-04
			Radionuclide Total										
		Exposure Point Total						3E-09					3E-04
	Exposure Medium Total							3E-09					3E-04
Medium Total								2E-07					8E-02
Receptor Total								5E-06					8E-01

- - = Not Evaluated
N/A = Not Applicable
Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-06

Total Hazard Across All Media: 8E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	4E-02
Total GI System HI =	1E-01
Total Immune System HI =	2E-01
Total Kidney HI =	2E-02
Total Liver HI =	1E-01
Total CNS HI =	2E-01
Total Skin HI =	1E-01
Total Spleen HI =	9E-05
Total Respiratory HI =	4E-02
Total Developmental HI =	2E-02
Total Endocrine HI =	1E-02

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	4E-08	3E-13	2E-08	- -	6E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	4E-07	3E-12	2E-07	- -	6E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	5E-08	4E-13	2E-08	- -	7E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	- -	N/A	Kidney	8E-06	4E-08	3E-06	1E-05
			Benzo(k)fluoranthene	9E-10	7E-14	4E-10	- -	1E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-08	N/A	2E-08	- -	9E-08	Liver	2E-02	N/A	5E-03	2E-02
			Carbazole	1E-10	N/A	4E-11	- -	1E-10	N/A	N/A	N/A	N/A	N/A
			Chrysene	4E-10	3E-14	1E-10	- -	5E-10	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	6E-08	5E-13	2E-08	- -	9E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	- -	N/A	Kidney	5E-05	N/A	1E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-08	2E-13	1E-08	- -	4E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	- -	N/A	Kidney	2E-05	1E-07	9E-06	3E-05
			Aroclor-1248	4E-09	1E-13	2E-09	- -	6E-09	General Toxicity/Immune System	5E-03	N/A	2E-03	7E-03
			Aroclor-1254	2E-09	6E-14	8E-10	- -	3E-09	General Toxicity/Immune System	2E-03	N/A	1E-03	3E-03
			Aroclor-1260	3E-09	8E-14	1E-09	- -	4E-09	General Toxicity/Immune System	3E-03	N/A	1E-03	5E-03
			Dieldrin	3E-08	5E-13	9E-09	- -	4E-08	Liver	3E-03	N/A	8E-04	4E-03
			Dioxin TEQ	6E-08	8E-13	5E-09	- -	6E-08	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	- -	N/A	Developmental	7E-03	N/A	N/A	7E-03
			Arsenic	2E-07	3E-11	2E-08	- -	2E-07	Skin	3E-02	4E-04	3E-03	4E-02
			Cadmium (other media)	N/A	1E-11	N/A	- -	1E-11	Kidney	7E-03	4E-05	9E-04	8E-03
			Chromium	N/A	1E-08	N/A	- -	1E-08	GI System	3E-02	4E-05	N/A	3E-02
			Cobalt	N/A	4E-11	N/A	- -	4E-11	Endocrine	2E-03	2E-05	N/A	2E-03
			Copper	N/A	N/A	N/A	- -	N/A	GI System	5E-03	N/A	N/A	5E-03
			Iron	N/A	N/A	N/A	- -	N/A	Liver/GI System	3E-02	N/A	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	- -	N/A	CNS	1E-02	7E-04	N/A	1E-02
			Mercury (other media)	N/A	N/A	N/A	- -	N/A	CNS	5E-03	9E-07	N/A	5E-03
			Thallium	N/A	N/A	N/A	- -	N/A	Blood	2E-03	N/A	N/A	2E-03
			Vanadium	N/A	N/A	N/A	- -	N/A	Kidney	3E-03	N/A	N/A	3E-03
			Zinc	N/A	N/A	N/A	- -	N/A	Blood	1E-03	N/A	N/A	1E-03
			Chemical Total	1E-06	1E-08	3E-07	- -	1E-06		2E-01	1E-03	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-01
	Exposure Medium Total							1E-06					2E-01
	Outdoor (Trench) Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	6E-03	- -	6E-03
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	1E-03	- -	1E-03
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	2E-08	- -	- -	2E-08	Respiratory	- -	1E-02	- -	1E-02
			1,4-Dichlorobenzene	- -	3E-09	- -	- -	3E-09	Liver	- -	7E-06	- -	7E-06
			Benzene	- -	9E-07	- -	- -	9E-07	Immune System	- -	9E-02	- -	9E-02
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	1E-02	- -	1E-02
			Ethylbenzene	- -	1E-08	- -	- -	1E-08	Developmental	- -	3E-04	- -	3E-04
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	9E-08	- -	- -	9E-08	CNS	- -	4E-03	- -	4E-03
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	3E-02	- -	3E-02
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	1E-02	- -	1E-02
			Chemical Total	- -	1E-06	- -	- -	1E-06		- -	2E-01	- -	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-01
	Exposure Medium Total							1E-06					2E-01
Medium Total								2E-06					4E-01
Groundwater	Groundwater	Shallow Monitoring Wells											
			1,4-Dioxane	1E-10	- -	N/A	- -	1E-10	Liver	8E-06	- -	N/A	8E-06
			2,4-Dimethylphenol	N/A	- -	N/A	- -	N/A	Blood/CNS	2E-05	- -	N/A	2E-05
			2-Chlorophenol	N/A	- -	N/A	- -	N/A	Reproductive	8E-06	- -	N/A	8E-06
			4-Chloroaniline	5E-10	- -	N/A	- -	5E-10	Spleen	4E-05	- -	N/A	4E-05
			Atrazine	7E-10	- -	N/A	- -	7E-10	General Toxicity/Cardiovascular	6E-06	- -	N/A	6E-06
			Benzaldehyde	N/A	- -	N/A	- -	N/A	Kidney	1E-06	- -	N/A	1E-06
			Benzo(a)anthracene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-09	- -	N/A	- -	1E-09	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	4E-11	- -	N/A	- -	4E-11	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	6E-07	- -	N/A	6E-07
			bis(2-Ethylhexyl)phthalate	1E-10	- -	4E-10	- -	6E-10	Liver	3E-05	- -	1E-04	1E-04
			Carbazole	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	7E-05	8E-05
			Indeno(1,2,3-cd)pyrene	2E-10	- -	N/A	- -	2E-10	N/A	N/A	- -	N/A	N/A
			Naphthalene	N/A	- -	N/A	- -	N/A	General Toxicity	5E-06	- -	N/A	5E-06
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	8E-07	- -	N/A	8E-07
			1,2,4-Trichlorobenzene	1E-12	- -	N/A	- -	1E-12	Endocrine	3E-06	- -	N/A	3E-06
			1,2-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Liver	1E-06	- -	N/A	1E-06
			1,3-Dichlorobenzene	N/A	- -	N/A	- -	N/A	Endocrine	2E-06	- -	N/A	2E-06
			1,4-Dichlorobenzene	9E-12	- -	N/A	- -	9E-12	Liver	2E-06	- -	N/A	2E-06

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Butanone	N/A	- -	N/A	- -	N/A	Developmental	3E-07	- -	N/A	3E-07
			Benzene	1E-08	- -	N/A	- -	1E-08	Immune System	3E-03	- -	N/A	3E-03
			Bromodichloromethane	N/A	- -	N/A	- -	N/A	Kidney	N/A	- -	N/A	N/A
			Chlorobenzene	N/A	- -	N/A	- -	N/A	Liver/Kidney	3E-05	- -	N/A	3E-05
			Chloroethane	N/A	- -	N/A	- -	N/A	CNS/Liver	6E-07	- -	N/A	6E-07
			Chloroform	3E-11	- -	N/A	- -	3E-11	Liver	8E-06	- -	N/A	8E-06
			Ethylbenzene	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	2E-06	- -	N/A	2E-06
			Isopropylbenzene	N/A	- -	N/A	- -	N/A	Kidney	1E-05	- -	N/A	1E-05
			Methyl tert-butyl ether	5E-12	- -	N/A	- -	5E-12	Liver	7E-07	- -	N/A	7E-07
			Tetrachloroethene	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Toluene	N/A	- -	N/A	- -	N/A	Kidney	9E-07	- -	N/A	9E-07
			Trichloroethene	1E-11	- -	N/A	- -	1E-11	N/A	N/A	- -	N/A	N/A
			Vinyl Chloride	8E-10	- -	N/A	- -	8E-10	Liver	3E-05	- -	N/A	3E-05
			Xylene (Total)	N/A	- -	N/A	- -	N/A	General Toxicity	1E-06	- -	N/A	1E-06
			Aroclor-1242	6E-10	- -	N/A	- -	6E-10	General Toxicity/Immune System	2E-03	- -	N/A	2E-03
			Aroclor-1248	9E-11	- -	N/A	- -	9E-11	General Toxicity/Immune System	3E-04	- -	N/A	3E-04
			Aroclor-1254	1E-09	- -	N/A	- -	1E-09	General Toxicity/Immune System	4E-03	- -	N/A	4E-03
			4,4'-DDD	1E-12	- -	N/A	- -	1E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDE	2E-12	- -	N/A	- -	2E-12	N/A	N/A	- -	N/A	N/A
			4,4'-DDT	2E-12	- -	N/A	- -	2E-12	Liver	7E-07	- -	N/A	7E-07
			Aldrin	6E-11	- -	N/A	- -	6E-11	Liver	8E-06	- -	N/A	8E-06
			alpha-BHC	2E-11	- -	N/A	- -	2E-11	Liver	3E-08	- -	N/A	3E-08
			Dieldrin	N/A	- -	N/A	- -	N/A	Liver	N/A	- -	N/A	N/A
			Endosulfan Sulfate	N/A	- -	N/A	- -	N/A	General Toxicity/Kidney	N/A	- -	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	- -	N/A	- -	2E-11	Liver/Kidney	3E-06	- -	N/A	3E-06
			Heptachlor	1E-11	- -	N/A	- -	1E-11	Liver	5E-07	- -	N/A	5E-07
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	2E-04	- -	N/A	2E-04
			Arsenic	8E-08	- -	N/A	- -	8E-08	Skin	1E-02	- -	N/A	1E-02
			Cadmium (drinking water)	N/A	- -	N/A	- -	N/A	Kidney	5E-04	- -	N/A	5E-04
			Chromium	N/A	- -	N/A	- -	N/A	GI System	7E-05	- -	N/A	7E-05
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-03	- -	N/A	3E-03
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	4E-03	- -	N/A	4E-03
			Lead	N/A	- -	N/A	- -	N/A	CNS	N/A	- -	N/A	N/A
			Manganese (drinking water)	N/A	- -	N/A	- -	N/A	CNS	5E-03	- -	N/A	5E-03
			Nickel	N/A	- -	N/A	- -	N/A	General Toxicity	5E-05	- -	N/A	5E-05
			Silver	N/A	- -	N/A	- -	N/A	Skin	5E-05	- -	N/A	5E-05
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-03	- -	N/A	4E-03
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-04	- -	N/A	1E-04
			Chemical Total	9E-08	- -	4E-10	- -	9E-08		4E-02	- -	2E-04	4E-02

TABLE 9.32.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Radionuclide Total										
		Exposure Point Total						9E-08					4E-02
	Exposure Medium Total							9E-08					4E-02
	Outdoor (Trench) Air	Nunes Parcel	Benzene	- -	2E-09	- -	- -	2E-09	Immune System	- -	2E-04	- -	2E-04
			Chemical Total	- -	2E-09	- -	- -	2E-09		- -	2E-04	- -	2E-04
			Radionuclide Total										
		Exposure Point Total						2E-09					2E-04
	Exposure Medium Total							2E-09					2E-04
Medium Total								9E-08					4E-02
Receptor Total								2E-06					4E-01

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 2E-06

Total Hazard Across All Media: 4E-01

Total Blood HI =	8E-03
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	2E-02
Total GI System HI =	7E-02
Total Immune System HI =	1E-01
Total Kidney HI =	1E-02
Total Liver HI =	6E-02
Total CNS HI =	8E-02
Total Skin HI =	5E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	2E-02
Total Developmental HI =	7E-03
Total Endocrine HI =	5E-03

TABLE 9.33.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	2E-05	- -	9E-06	- -	3E-05	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	2E-04	- -	9E-05	- -	3E-04	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	3E-05	- -	1E-05	- -	4E-05	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	1E-03	- -	5E-04	2E-03
			Benzo(k)fluoranthene	5E-07	- -	2E-07	- -	7E-07	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	9E-06	- -	3E-06	- -	1E-05	Liver	3E-01	- -	8E-02	3E-01
			Carbazole	1E-08	- -	6E-09	- -	2E-08	N/A	N/A	- -	N/A	N/A
			Chrysene	2E-07	- -	8E-08	- -	3E-07	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	3E-05	- -	1E-05	- -	5E-05	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	8E-04	- -	2E-04	1E-03
			Indeno(1,2,3-cd)pyrene	1E-05	- -	5E-06	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	4E-03	- -	1E-03	5E-03
			Aroclor-1248	1E-06	- -	5E-07	- -	2E-06	General Toxicity/Immune System	2E-01	- -	9E-02	3E-01
			Aroclor-1254	5E-07	- -	2E-07	- -	8E-07	General Toxicity/Immune System	1E-01	- -	4E-02	2E-01
			Aroclor-1260	8E-07	- -	3E-07	- -	1E-06	General Toxicity/Immune System	2E-01	- -	6E-02	2E-01
			Dieldrin	4E-06	- -	1E-06	- -	6E-06	Liver	4E-02	- -	1E-02	6E-02
			Dioxin TEQ	9E-06	- -	9E-07	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	1E-01	- -	N/A	1E-01
			Arsenic	3E-05	- -	3E-06	- -	3E-05	Skin	6E-01	- -	5E-02	6E-01
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	1E-01	- -	1E-02	1E-01
			Chromium	N/A	- -	N/A	- -	N/A	GI System	1E+00	- -	N/A	1E+00
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	3E-01	- -	N/A	3E-01
			Copper	N/A	- -	N/A	- -	N/A	GI System	8E-02	- -	N/A	8E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	5E-01	- -	N/A	5E-01
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	2E-01	- -	N/A	2E-01
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	9E-02	- -	N/A	9E-02
			Thallium	N/A	- -	N/A	- -	N/A	Blood	4E-01	- -	N/A	4E-01
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	5E-02	- -	N/A	5E-02
			Zinc	N/A	- -	N/A	- -	N/A	Blood	2E-02	- -	N/A	2E-02
			Chemical Total	4E-04	- -	1E-04	- -	5E-04		4E+00	- -	3E-01	5E+00
			Radionuclide Total										
		Exposure Point Total						5E-04					5E+00
	Exposure Medium Total							5E-04					5E+00
	Indoor Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.33.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	2E-01	- -	2E-01
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	4E-02	- -	4E-02
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	1E-05	- -	- -	1E-05	Respiratory	- -	3E-01	- -	3E-01
			1,4-Dichlorobenzene	- -	2E-06	- -	- -	2E-06	Liver	- -	5E-04	- -	5E-04
			Benzene	- -	5E-04	- -	- -	5E-04	Immune System	- -	5E+00	- -	5E+00
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	2E-01	- -	2E-01
			Ethylbenzene	- -	7E-06	- -	- -	7E-06	Developmental	- -	6E-03	- -	6E-03
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	5E-05	- -	- -	5E-05	CNS	- -	8E-02	- -	8E-02
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	5E-01	- -	5E-01
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	7E-01	- -	7E-01
			Chemical Total	- -	6E-04	- -	- -	6E-04		- -	7E+00	- -	7E+00
			Radionuclide Total										
		Exposure Point Total						6E-04					7E+00
	Exposure Medium Total							6E-04					7E+00
Medium Total								1E-03					1E+01
Groundwater	Indoor Air	Nunes Parcel											
			Naphthalene	- -	1E-06	- -	- -	1E-06	Respiratory	- -	2E-02	- -	2E-02
			1,4-Dichlorobenzene	- -	3E-07	- -	- -	3E-07	Liver	- -	7E-05	- -	7E-05
			Benzene	- -	5E-06	- -	- -	5E-06	Immune System	- -	5E-02	- -	5E-02
			Chloroform	- -	1E-06	- -	- -	1E-06	Liver	- -	1E-03	- -	1E-03
			Ethylbenzene	- -	2E-06	- -	- -	2E-06	Developmental	- -	2E-03	- -	2E-03
			Vinyl chloride	- -	5E-06	- -	- -	5E-06	Liver	- -	7E-03	- -	7E-03
			Chemical Total	- -	1E-05	- -	- -	1E-05		- -	8E-02	- -	8E-02
			Radionuclide Total										
		Exposure Point Total						1E-05					8E-02
	Exposure Medium Total							1E-05					8E-02
Medium Total								1E-05					8E-02
Receptor Total								1E-03					1E+01

TABLE 9.33.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 1E-03

Total Hazard Across All Media: 1E+01

Total Blood HI =	4E-01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	2E+00
Total Immune System HI =	6E+00
Total Kidney HI =	2E-01
Total Liver HI =	9E-01
Total CNS HI =	2E+00
Total Skin HI =	6E-01
Total Spleen HI =	N/A
Total Respiratory HI =	5E-01
Total Developmental HI =	1E-01
Total Endocrine HI =	3E-01

TABLE 9.33.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-05	- -	9E-06	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(a)pyrene	1E-04	- -	8E-05	- -	2E-04	N/A	N/A	- -	N/A	N/A
			Benzo(b)fluoranthene	1E-05	- -	1E-05	- -	2E-05	N/A	N/A	- -	N/A	N/A
			Benzo(g,h,i)perylene	N/A	- -	N/A	- -	N/A	Kidney	7E-04	- -	5E-04	1E-03
			Benzo(k)fluoranthene	2E-07	- -	2E-07	- -	4E-07	N/A	N/A	- -	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-06	- -	2E-06	- -	6E-06	Liver	1E-01	- -	8E-02	2E-01
			Carbazole	6E-09	- -	4E-09	- -	1E-08	N/A	N/A	- -	N/A	N/A
			Chrysene	1E-07	- -	7E-08	- -	2E-07	N/A	N/A	- -	N/A	N/A
			Dibenz(a,h)anthracene	2E-05	- -	1E-05	- -	3E-05	N/A	N/A	- -	N/A	N/A
			Dibenzofuran	N/A	- -	N/A	- -	N/A	Kidney	4E-04	- -	2E-04	6E-04
			Indeno(1,2,3-cd)pyrene	7E-06	- -	5E-06	- -	1E-05	N/A	N/A	- -	N/A	N/A
			Phenanthrene	N/A	- -	N/A	- -	N/A	Kidney	2E-03	- -	1E-03	3E-03
			Aroclor-1248	2E-07	- -	2E-07	- -	4E-07	General Toxicity/Immune System	1E-01	- -	9E-02	2E-01
			Aroclor-1254	1E-07	- -	9E-08	- -	2E-07	General Toxicity/Immune System	5E-02	- -	4E-02	1E-01
			Aroclor-1260	2E-07	- -	1E-07	- -	3E-07	General Toxicity/Immune System	8E-02	- -	6E-02	1E-01
			Dieldrin	2E-06	- -	1E-06	- -	3E-06	Liver	2E-02	- -	1E-02	3E-02
			Dioxin TEQ	3E-06	- -	5E-07	- -	3E-06	N/A	N/A	- -	N/A	N/A
			Aluminum	N/A	- -	N/A	- -	N/A	Developmental	6E-02	- -	N/A	6E-02
			Arsenic	1E-05	- -	2E-06	- -	1E-05	Skin	3E-01	- -	5E-02	3E-01
			Cadmium (other media)	N/A	- -	N/A	- -	N/A	Kidney	6E-02	- -	1E-02	7E-02
			Chromium	N/A	- -	N/A	- -	N/A	GI System	6E-01	- -	N/A	6E-01
			Cobalt	N/A	- -	N/A	- -	N/A	Endocrine	2E-01	- -	N/A	2E-01
			Copper	N/A	- -	N/A	- -	N/A	GI System	4E-02	- -	N/A	4E-02
			Iron	N/A	- -	N/A	- -	N/A	Liver/GI System	3E-01	- -	N/A	3E-01
			Lead										
			Manganese (other media)	N/A	- -	N/A	- -	N/A	CNS	8E-02	- -	N/A	8E-02
			Mercury (other media)	N/A	- -	N/A	- -	N/A	CNS	4E-02	- -	N/A	4E-02
			Thallium	N/A	- -	N/A	- -	N/A	Blood	2E-01	- -	N/A	2E-01
			Vanadium	N/A	- -	N/A	- -	N/A	Kidney	3E-02	- -	N/A	3E-02
			Zinc	N/A	- -	N/A	- -	N/A	Blood	1E-02	- -	N/A	1E-02
			Chemical Total	2E-04	- -	1E-04	- -	3E-04		2E+00	- -	3E-01	3E+00
			Radionuclide Total										
		Exposure Point Total						3E-04					3E+00
	Exposure Medium Total							3E-04					3E+00
	Indoor Air	Nunes Parcel											
			1,1'-Biphenyl	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A

TABLE 9.33.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	- -	N/A	- -	- -	N/A	Respiratory	- -	1E-01	- -	1E-01
			Acenaphthene	- -	N/A	- -	- -	N/A	Respiratory	- -	3E-02	- -	3E-02
			Acetophenone	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Benzaldehyde	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Naphthalene	- -	4E-06	- -	- -	4E-06	Respiratory	- -	2E-01	- -	2E-01
			1,4-Dichlorobenzene	- -	5E-07	- -	- -	5E-07	Liver	- -	3E-04	- -	3E-04
			Benzene	- -	1E-04	- -	- -	1E-04	Immune System	- -	3E+00	- -	3E+00
			Carbon disulfide	- -	N/A	- -	- -	N/A	CNS	- -	1E-01	- -	1E-01
			Ethylbenzene	- -	2E-06	- -	- -	2E-06	Developmental	- -	4E-03	- -	4E-03
			Methyl acetate	- -	N/A	- -	- -	N/A	N/A	- -	N/A	- -	N/A
			Tetrachloroethene	- -	2E-05	- -	- -	2E-05	CNS	- -	5E-02	- -	5E-02
			Toluene	- -	N/A	- -	- -	N/A	CNS	- -	3E-01	- -	3E-01
			Xylene (Total)	- -	N/A	- -	- -	N/A	CNS	- -	5E-01	- -	5E-01
			Chemical Total	- -	2E-04	- -	- -	2E-04		- -	5E+00	- -	5E+00
			Radionuclide Total										
		Exposure Point Total						2E-04					5E+00
	Exposure Medium Total							2E-04					5E+00
Medium Total								5E-04					7E+00
Groundwater	Indoor Air	Nunes Parcel											
			Naphthalene	- -	3E-07	- -	- -	3E-07	Respiratory	- -	1E-02	- -	1E-02
			1,4-Dichlorobenzene	- -	8E-08	- -	- -	8E-08	Liver	- -	5E-05	- -	5E-05
			Benzene	- -	1E-06	- -	- -	1E-06	Immune System	- -	3E-02	- -	3E-02
			Chloroform	- -	3E-07	- -	- -	3E-07	Liver	- -	8E-04	- -	8E-04
			Ethylbenzene	- -	5E-08	- -	- -	5E-08	Developmental	- -	1E-04	- -	1E-04
			Vinyl chloride	- -	3E-06	- -	- -	3E-06	Liver	- -	5E-03	- -	5E-03
			Chemical Total	- -	5E-06	- -	- -	5E-06		- -	5E-02	- -	5E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					5E-02
	Exposure Medium Total							5E-06					5E-02
Medium Total								5E-06					5E-02
Receptor Total								5E-04					7E+00

TABLE 9.33.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-04

Total Hazard Across All Media: 7E+00

Total Blood HI =	2E-01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-01
Total GI System HI =	9E-01
Total Immune System HI =	4E+00
Total Kidney HI =	1E-01
Total Liver HI =	5E-01
Total CNS HI =	1E+00
Total Skin HI =	3E-01
Total Spleen HI =	N/A
Total Respiratory HI =	4E-01
Total Developmental HI =	6E-02
Total Endocrine HI =	2E-01

TABLE 10.1.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2											
			Benzo(a)anthracene	2E-06	- -	- -	- -	2E-06					
			Benzo(a)pyrene	2E-05	- -	- -	- -	2E-05					
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06					
			Total PCB Homologs	1E-04	- -	- -	- -	1E-04	General Toxicity/Immune System	1E+01	- -	- -	1E+01
			Aldrin	2E-06	- -	- -	- -	2E-06					
			Dieldrin	2E-05	- -	- -	- -	2E-05					
			Arsenic	6E-06	- -	- -	- -	6E-06					
			Chemical Total	2E-04	- -	- -	- -	2E-04		1E+01	- -	- -	1E+01
			Radionuclide Total										
		Exposure Point Total						2E-04					1E+01
	Exposure Medium Total							2E-04					1E+01
Medium Total								2E-04					1E+01
Receptor Total								2E-04					1E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 2E-04

Total Hazard Across All Media: 1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	N/A
Total Immune System HI =	1E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.1.CT

RISK SUMMARY

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Total PCB Homologs						General Toxicity/Immune System	7E+00	- -	- -	7E+00
			Chemical Total	- -	- -	- -	- -	N/A		7E+00	- -	- -	7E+00
			Radionuclide Total										
		Exposure Point Total						N/A					7E+00
	Exposure Medium Total							N/A					7E+00
Medium Total								N/A					7E+00
Receptor Total								N/A					7E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: N/A

Total Hazard Across All Media: 7E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	N/A
Total Immune System HI =	7E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1											
			Benzo(a)pyrene	2E-05	- -	- -	- -	2E-05					
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06					
			Total PCB Homologs	1E-04	- -	- -	- -	1E-04	General Toxicity/Immune System	9E+00	- -	- -	9E+00
			Dieldrin	2E-05	- -	- -	- -	2E-05					
			Heptachlor Epoxide	2E-06	- -	- -	- -	2E-06					
			Arsenic	1E-05	- -	- -	- -	1E-05					
			Chemical Total	2E-04	- -	- -	- -	2E-04		9E+00	- -	- -	9E+00
			Radionuclide Total										
		Exposure Point Total						2E-04					9E+00
	Exposure Medium Total							2E-04					9E+00
Medium Total								2E-04					9E+00
Receptor Total								2E-04					9E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 2E-04

Total Hazard Across All Media: 9E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E+00
Total GI System HI =	N/A
Total Immune System HI =	9E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.2.CT

RISK SUMMARY

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Total PCB Homologs						General Toxicity/Immune System	6E+00	- -	- -	6E+00
			Chemical Total	- -	- -	- -	- -	N/A		6E+00	- -	- -	6E+00
			Radionuclide Total										
		Exposure Point Total						N/A					6E+00
	Exposure Medium Total							N/A					6E+00
Medium Total								N/A					6E+00
Receptor Total								N/A					6E+00

- - = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media: N/A

Total Hazard Across All Media: 6E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E+00
Total GI System HI =	N/A
Total Immune System HI =	6E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2											
			Benzo(a)anthracene	5E-06	- -	- -	- -	5E-06					
			Benzo(a)pyrene	5E-05	- -	- -	- -	5E-05					
			Benzo(b)fluoranthene	2E-06	- -	- -	- -	2E-06					
			Dibenz(a,h)anthracene	2E-05	- -	- -	- -	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	- -	- -	- -	2E-06					
			Total PCB Homologs	2E-04	- -	- -	- -	2E-04	General Toxicity/Immune System	2E+01	- -	- -	2E+01
			Dieldrin	3E-05	- -	- -	- -	3E-05					
			Arsenic	1E-05	- -	- -	- -	1E-05					
			Chemical Total	3E-04	- -	- -	- -	3E-04		2E+01	- -	- -	2E+01
			Radionuclide Total										
		Exposure Point Total						3E-04					2E+01
	Exposure Medium Total							3E-04					2E+01
Medium Total								3E-04					2E+01
Receptor Total								3E-04					2E+01

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 3E-04

Total Hazard Across All Media: 2E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+01
Total GI System HI =	N/A
Total Immune System HI =	2E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.3.CT

RISK SUMMARY

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Total PCB Homologs						General Toxicity/Immune System	1E+01	- -	- -	1E+01
			Chemical Total	- -	- -	- -	- -	N/A		1E+01	- -	- -	1E+01
			Radionuclide Total										
		Exposure Point Total						N/A					1E+01
	Exposure Medium Total							N/A					1E+01
Medium Total								N/A					1E+01
Receptor Total								N/A					1E+01

- - = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media: N/A

Total Hazard Across All Media: 1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	N/A
Total Immune System HI =	1E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.4.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Total PCB Homologs						General Toxicity/Immune System	2E+00	- -	- -	2E+00
			Mercury (other media)						CNS	2E+00	- -	- -	2E+00
			Chemical Total	- -	- -	- -	- -	N/A		4E+00	- -	- -	4E+00
			Radionuclide Total										
		Exposure Point Total						N/A					4E+00
	Exposure Medium Total							N/A					4E+00
Medium Total								N/A					4E+00
Receptor Total								N/A					4E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: N/A

Total Hazard Across All Media: 4E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+00
Total GI System HI =	N/A
Total Immune System HI =	2E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	2E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.5.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells											
			1,4-Dioxane	1E-05	N/A	N/A	- -	1E-05					
			4-Chloroaniline	5E-06	N/A	N/A	- -	5E-06					
			Atrazine	1E-05	N/A	9E-07	- -	1E-05					
			Benzo(a)anthracene	1E-05	N/A	N/A	- -	1E-05					
			Benzo(a)pyrene	1E-04	N/A	N/A	- -	1E-04					
			Benzo(b)fluoranthene	1E-05	N/A	N/A	- -	1E-05					
			bis(2-Ethylhexyl)phthalate	1E-05	N/A	2E-05	- -	3E-05					
			Indeno(1,2,3-cd)pyrene	5E-06	N/A	N/A	- -	5E-06					
			Naphthalene	N/A	1E-04	N/A	- -	1E-04	General Toxicity	7E-02	2E+00	3E-02	2E+00
			1,4-Dichlorobenzene	8E-07	2E-05	4E-07	- -	2E-05					
			Benzene	1E-03	2E-03	9E-05	- -	3E-03	Immune System	3E+01	2E+01	N/A	4E+01
			Chloroform	2E-06	2E-05	N/A	- -	2E-05					
			Ethylbenzene	3E-06	9E-06	2E-06	- -	1E-05					
			Methyl tert-butyl ether	7E-07	1E-06	N/A	- -	2E-06					
			Tetrachloroethene	2E-05	3E-06	1E-05	- -	4E-05					
			Trichloroethene	9E-07	2E-06	8E-08	- -	3E-06					
			Vinyl Chloride	1E-04	1E-06	N/A	- -	1E-04					
			Aroclor-1242	1E-05	N/A	N/A	- -	1E-05	General Toxicity/Immune System	2E+00	N/A	N/A	2E+00
			Aroclor-1248	6E-06	N/A	N/A	- -	6E-06					
			Aroclor-1254	2E-05	N/A	N/A	- -	2E-05	General Toxicity/Immune System	3E+00	N/A	N/A	3E+00
			Aldrin	2E-06	N/A	N/A	- -	2E-06					
			Dieldrin	2E-06	N/A	1E-06	- -	4E-06					
			Aluminum						Developmental	1E+00	N/A	6E-01	2E+00
			Arsenic	3E-03	N/A	N/A	- -	3E-03	Skin	4E+01	N/A	N/A	4E+01
			Cadmium (drinking water)						Kidney	5E+00	N/A	5E-01	6E+00
			Cobalt						Endocrine	1E+01	N/A	N/A	1E+01
			Iron						Liver/GI System	1E+01	N/A	N/A	1E+01
			Manganese (drinking water)						CNS	2E+01	N/A	N/A	2E+01
			Thallium						Blood	1E+01	N/A	N/A	1E+01
			Chemical Total	5E-03	2E-03	1E-04	- -	7E-03		1E+02	2E+01	1E+00	2E+02
			Radionuclide Total										
		Exposure Point Total						7E-03					2E+02
	Exposure Medium Total							7E-03					2E+02
Medium Total								7E-03					2E+02
Receptor Total								7E-03					2E+02

TABLE 10.5.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: 7E-03

Total Hazard Across All Media: 2E+02

Total Blood HI =	1E+01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	1E+01
Total Immune System HI =	5E+01
Total Kidney HI =	6E+00
Total Liver HI =	1E+01
Total CNS HI =	2E+01
Total Skin HI =	4E+01
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E+00
Total Endocrine HI =	1E+01

TABLE 10.5.CT

RISK SUMMARY

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells											
			Arsenic						Skin	3E+00	N/A	N/A	3E+00
			Cobalt						Endocrine	3E+00	N/A	N/A	3E+00
			Manganese (drinking water)						CNS	2E+00	N/A	N/A	2E+00
			Chemical Total	- -	- -	- -	- -	N/A		8E+00	- -	- -	8E+00
			Radionuclide Total										
		Exposure Point Total						N/A					8E+00
	Exposure Medium Total							N/A					8E+00
Medium Total								N/A					8E+00
Receptor Total								N/A					8E+00

- - = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media: N/A

Total Hazard Across All Media: 8E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	N/A
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	2E+00
Total Skin HI =	3E+00
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	3E+00

TABLE 10.6.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-06	- -	1E-06	- -	3E-06					
			Benzo(a)pyrene	1E-05	- -	1E-05	- -	2E-05					
			Benzo(b)fluoranthene	2E-06	- -	1E-06	- -	3E-06					
			bis(2-Ethylhexyl)phthalate	2E-06	- -	1E-06	- -	3E-06					
			Dibenz(a,h)anthracene	2E-06	- -	2E-06	- -	3E-06					
			Dieldrin	1E-06	- -	6E-07	- -	2E-06					
			Dioxin TEQ	2E-06	- -	4E-07	- -	2E-06					
			Arsenic	7E-06	- -	1E-06	- -	8E-06					
			Chemical Total	3E-05	- -	2E-05	- -	5E-05		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						5E-05					N/A
	Exposure Medium Total							5E-05					N/A
	Indoor Air	Nunes Parcel											
			Naphthalene	- -	3E-06	- -	- -	3E-06					
			Benzene	- -	1E-04	- -	- -	1E-04					
			Tetrachloroethene	- -	1E-05	- -	- -	1E-05					
			Chemical Total	- -	1E-04	- -	- -	1E-04		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						1E-04					N/A
	Exposure Medium Total							1E-04					N/A
Medium Total								2E-04					N/A
Receptor Total								2E-04					N/A

TABLE 10.6.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media	2E-04
Total Hazard Across All Media	N/A
Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	N/A
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	2E-05	- -	9E-06	- -	3E-05					
			Benzo(a)pyrene	2E-04	- -	9E-05	- -	3E-04					
			Benzo(b)fluoranthene	3E-05	- -	1E-05	- -	4E-05					
			bis(2-Ethylhexyl)phthalate	9E-06	- -	3E-06	- -	1E-05					
			Dibenz(a,h)anthracene	3E-05	- -	1E-05	- -	5E-05					
			Indeno(1,2,3-cd)pyrene	1E-05	- -	5E-06	- -	2E-05					
			Aroclor-1248	1E-06	- -	5E-07	- -	2E-06					
			Dieldrin	4E-06	- -	1E-06	- -	6E-06					
			Dioxin TEQ	9E-06	- -	9E-07	- -	1E-05					
			Arsenic	3E-05	- -	3E-06	- -	3E-05					
			Chemical Total	4E-04	- -	1E-04	- -	5E-04		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						5E-04					N/A
	Exposure Medium Total							5E-04					N/A
	Indoor Air	Nunes Parcel											
			Naphthalene	- -	1E-05	- -	- -	1E-05					
			1,4-Dichlorobenzene	- -	2E-06	- -	- -	2E-06					
			Benzene	- -	5E-04	- -	- -	5E-04	Immune System	- -	5E+00	- -	5E+00
			Ethylbenzene	- -	7E-06	- -	- -	7E-06					
			Tetrachloroethene	- -	5E-05	- -	- -	5E-05					
			Chemical Total	- -	6E-04	- -	- -	6E-04		- -	5E+00	- -	5E+00
			Radionuclide Total										
		Exposure Point Total						6E-04					5E+00
	Exposure Medium Total							6E-04					5E+00
Medium Total								1E-03					5E+00
Groundwater	Indoor Air	Nunes Parcel											
			Benzene	- -	5E-06	- -	- -	5E-06					
			Ethylbenzene	- -	2E-06	- -	- -	2E-06					
			Vinyl chloride	- -	5E-06	- -	- -	5E-06					
			Chemical Total	- -	1E-05	- -	- -	1E-05		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						1E-05					N/A
	Exposure Medium Total							1E-05					N/A

TABLE 10.7.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Medium Total								1E-05					N/A
Receptor Total								1E-03					5E+00

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 1E-03

Total Hazard Across All Media: 5E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	5E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.7.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel											
			Benzo(a)anthracene	1E-05	- -	9E-06	- -	2E-05					
			Benzo(a)pyrene	1E-04	- -	8E-05	- -	2E-04					
			Benzo(b)fluoranthene	1E-05	- -	1E-05	- -	2E-05					
			bis(2-Ethylhexyl)phthalate	4E-06	- -	2E-06	- -	6E-06					
			Dibenz(a,h)anthracene	2E-05	- -	1E-05	- -	3E-05					
			Indeno(1,2,3-cd)pyrene	7E-06	- -	5E-06	- -	1E-05					
			Dieldrin	2E-06	- -	1E-06	- -	3E-06					
			Dioxin TEQ	3E-06	- -	5E-07	- -	3E-06					
			Arsenic	1E-05	- -	2E-06	- -	1E-05					
			Chemical Total	2E-04	- -	1E-04	- -	3E-04		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						3E-04					N/A
	Exposure Medium Total							3E-04					N/A
	Indoor Air	Nunes Parcel											
			Naphthalene	- -	4E-06	- -	- -	4E-06					
			Benzene	- -	1E-04	- -	- -	1E-04	Immune System	- -	3E+00	- -	3E+00
			Ethylbenzene	- -	2E-06	- -	- -	2E-06					
			Tetrachloroethene	- -	2E-05	- -	- -	2E-05					
			Chemical Total	- -	2E-04	- -	- -	2E-04		- -	3E+00	- -	3E+00
			Radionuclide Total										
		Exposure Point Total						2E-04					3E+00
	Exposure Medium Total							2E-04					3E+00
Medium Total								5E-04					3E+00
Groundwater	Indoor Air	Nunes Parcel											
			Vinyl chloride	- -	3E-06	- -	- -	3E-06					
			Chemical Total	- -	3E-06	- -	- -	3E-06		- -	- -	- -	N/A
			Radionuclide Total										
		Exposure Point Total						3E-06					N/A
	Exposure Medium Total							3E-06					N/A
Medium Total								3E-06					N/A
Receptor Total								5E-04					3E+00

TABLE 10.7.CT

RISK SUMMARY

CENTRAL TENDENCY

PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

- - = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media: 5E-04

Total Hazard Across All Media: 3E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	3E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
95501	4.40E+00	1,2-Dichlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	11,687	6.67E-04	2.87E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.62E-04	3.75E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.26E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	9.46E-04	1.19E-01	NA	2.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
106467	8.40E+00	1,4-Dichlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.57E-04	3.73E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	3.17E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	9.41E-04	2.98E-01	NA	8.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
83329	6.30E-01	Acenaphthene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.70E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	9.92E-01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	9.37E-04	9.29E-04	NA	2.1E-01

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432	1.90E+01	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.19E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	2.41E+00	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
108907	2.70E+00	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	4.77E-04	3.90E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.79E+02	0.10	8.33E+01	1.18E-02	4.00E+02	4.66E+76	9.72E-04	1.74E-01	NA	6.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663	2.40E+00	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	5.54E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.92E+02	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.23E-03	2.36E-01	2.3E-05	NA

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
74873	4.30E-01	Methyl chloride (chloromethane)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	4,747	5.76E-03	2.48E-01	1.75E-04	2.04E-02	2.04E-02	2.04E-02	8.09E-04	6.65E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.07E+02	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	1.37E-03	1.46E-01	1.0E-06	9.0E-02

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
100414	1.70E+01	Ethylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.32E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	2.29E+00	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
86737	3.40E-01	Fluorene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	4.33E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.17E-01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.05E-03	2.27E-04	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
98828	1.60E+02	Cumene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	4.19E-04	3.44E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	3.25E+04	0.10	8.33E+01	1.05E-02	4.00E+02	1.27E+86	8.88E-04	2.88E+01	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
1634044	2.10E+01	MTBE

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	7,294	3.25E-04	1.40E-02	1.75E-04	1.66E-02	1.66E-02	1.66E-02	7.11E-04	5.71E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.93E+02	0.10	8.33E+01	1.66E-02	4.00E+02	4.53E+54	1.25E-03	3.67E-01	NA	3.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
91203	1.40E+01	Naphthalene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	3.57E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	9.15E+01	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	9.12E-04	8.34E-02	NA	3.0E-03

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
129000	7.50E-02	Pyrene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	7.34E-03	4.59E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	5.56E-03	0.10	8.33E+01	4.44E-03	4.00E+02	6.81E+203	1.09E-03	6.05E-06	NA	1.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
108883	4.90E+00	Toluene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	5.62E-04	4.62E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	6.16E+02	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.09E-03	6.72E-01	NA	4.0E-01

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
75014	8.50E-01	Vinyl chloride (chloroethene)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	5.60E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	6.30E+02	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.24E-03	7.78E-01	8.8E-06	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
106423	5.10E+01	p-Xylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	4.97E-04	4.08E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	6.71E+03	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.00E-03	6.73E+00	NA	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
86737	3.40E-01	Fluorene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	4.33E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.17E-01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.05E-03	2.27E-04	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
83329	6.30E-01	Acenaphthene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.70E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	9.92E-01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	9.37E-04	9.29E-04	NA	2.1E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
78933	9.60E+01	Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.60E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	0.10	8.33E+01	1.31E-02	4.00E+02	1.77E+69	1.92E-03	5.58E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	5.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	2.40E+03	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G28)					
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.40E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	2.66E+02	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	3.70E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
67641	1.50E+02	Acetone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,559	1.97E-05	8.47E-04	1.75E-04	2.01E-02	2.01E-02	2.01E-02	2.01E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-03	3.76E+03	0.10	8.33E+01	2.01E-02	4.00E+02	1.33E+45	2.24E-03	8.42E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98862	8.00E+01	Acetophenone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	0.10	8.33E+01	9.73E-03	4.00E+02	9.78E+92	1.68E-03	1.12E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100527	5.40E+02	Benzaldehyde

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	5.40E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	1.25E+03	0.10	8.33E+01	1.17E-02	4.00E+02	3.44E+77	1.83E-03	2.29E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432	3.10E+02	Benzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.10E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	2.07E+05	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.99E-03	4.11E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
92524	1.20E+02	Biphenyl

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.20E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
8.75E+00	5.02E+01	0.10	8.33E+01	6.53E-03	4.00E+02	3.28E+138	1.36E-03	6.81E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.8E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75150	2.70E+01	Carbon disulfide

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.70E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.11E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108907	1.80E+01	Chlorobenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.80E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	1.18E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.38E-01	2.46E+03	0.10	8.33E+01	1.18E-02	4.00E+02	4.66E+76	1.84E-03	4.52E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	6.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100414	2.00E+01	Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.86E-03	6.46E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
86737	2.10E+03	Fluorene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.10E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	5.87E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.76E+01	4.86E+01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.27E-03	6.18E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.4E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98828	2.90E+01	Cumene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.90E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	1.05E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.77E-01	5.61E+03	0.10	8.33E+01	1.05E-02	4.00E+02	1.27E+86	1.74E-03	9.77E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	1.10E+03	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28): Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.10E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	6.97E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.46E+53	2.11E-03	1.47E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91203	9.00E+02	Naphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.00E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	1.46E+03	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	1.66E-03	2.43E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E-03

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
129000	3.20E+04	Pyrene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.20E+04	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	4.44E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.10E+02	1.13E+01	0.10	8.33E+01	4.44E-03	4.00E+02	6.81E+203	1.06E-03	1.20E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	1.30E+04	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.30E+04	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	3.88E+06	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.98E-03	7.68E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106423	4.40E+02	p-Xylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	4.40E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	6.92E+04	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.88E-03	1.30E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
156592	1.00E+00	cis-1,2-Dichloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G28)					
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.10E-02	7.28E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.84E-03	1.34E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75718	3.00E+00	Dichlorodifluoromethane

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,386	1.62E-01	6.96E+00	1.75E-04	1.08E-02	1.08E-02	1.08E-02	1.08E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-01	9.11E+03	0.10	8.33E+01	1.08E-02	4.00E+02	1.46E+84	1.76E-03	1.60E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108872	8.00E+01	Methylcyclohexane

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,584	4.77E-02	2.05E+00	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.57E-01	2.80E+05	0.10	8.33E+01	1.19E-02	4.00E+02	1.40E+76	1.84E-03	5.16E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
127184	1.50E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.83E-03	2.26E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
78933	9.60E+01	Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.60E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	0.10	8.33E+01	1.31E-02	4.00E+02	1.77E+69	1.92E-03	5.58E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	5.0E+00

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106467	8.00E+00	1,4-Dichlorobenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	1.12E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.23E+00	2.37E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	1.79E-03	4.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	8.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91576	9.00E+02	2-Methylnaphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.00E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	8.28E+02	0.10	8.33E+01	8.44E-03	4.00E+02	1.63E+107	1.56E-03	1.29E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
83329	6.30E-01	Acenaphthene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	9.92E-01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	1.58E-04	1.56E-04	NA	2.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432	1.90E+01	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	3.67E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	2.19E+03	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-04	4.13E-01	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
108907	2.70E+00	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	4.77E-04	3.07E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	1.79E+02	91.00	-6.28E+01	1.18E-02	6.10E+04	4.18E-01	1.58E-04	2.81E-02	NA	6.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663	2.40E+00	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	4.35E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	1.92E+02	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-04	4.30E-02	2.3E-05	NA

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
74873	4.30E-01	Methyl chloride (chloromethane)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	4,747	5.76E-03	2.48E-01	1.75E-04	2.04E-02	2.04E-02	2.04E-02	8.09E-04	5.22E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	1.07E+02	91.00	-6.28E+01	2.04E-02	6.10E+04	6.03E-01	2.69E-04	2.86E-02	1.0E-06	9.0E-02

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
100414	1.70E+01	Ethylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	2.32E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-04	3.72E-01	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
86737	3.40E-01	Fluorene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	3.92E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	2.17E-01	91.00	-6.28E+01	5.87E-03	6.10E+04	1.73E-01	1.94E-04	4.22E-05	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
98828	1.60E+02	Cumene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	4.19E-04	2.70E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	3.25E+04	91.00	-6.28E+01	1.05E-02	6.10E+04	3.75E-01	1.39E-04	4.50E+00	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
1634044	2.10E+01	MTBE

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	7,294	3.25E-04	1.40E-02	1.75E-04	1.66E-02	1.66E-02	1.66E-02	7.11E-04	4.50E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	2.93E+02	91.00	-6.28E+01	1.66E-02	6.10E+04	5.37E-01	2.32E-04	6.80E-02	NA	3.0E+00

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
91203	1.40E+01	Naphthalene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	2.84E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	9.15E+01	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.46E-04	1.33E-02	NA	3.0E-03

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
129000	7.50E-02	Pyrene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	7.34E-03	4.66E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	5.56E-03	91.00	-6.28E+01	4.44E-03	6.10E+04	9.84E-02	2.18E-04	1.21E-06	NA	1.1E-01

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
108883	4.90E+00	Toluene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	5.62E-04	3.62E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	6.16E+02	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.86E-04	1.15E-01	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
75014	8.50E-01	Vinyl chloride (chloroethene)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	4.39E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	6.30E+02	91.00	-6.28E+01	1.71E-02	6.10E+04	5.48E-01	2.26E-04	1.42E-01	8.8E-06	1.0E-01

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
106423	5.10E+01	p-Xylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	4.97E-04	3.20E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	6.71E+03	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.65E-04	1.10E+00	NA	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
156592	8.90E-01	cis-1,2-Dichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	4.81E-04	3.09E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	7.81E+01	91.00	-6.28E+01	1.19E-02	6.10E+04	4.21E-01	1.59E-04	1.24E-02	NA	3.5E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
83329	6.30E-01	Acenaphthene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	9.92E-01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	1.58E-04	1.56E-04	NA	2.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
106467	8.40E+00	1,4-Dichlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.57E-04	2.93E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	3.17E+02	91.00	-6.28E+01	1.12E-02	6.10E+04	3.97E-01	1.50E-04	4.76E-02	NA	8.0E-01

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
91576	2.00E+00	2-Methylnaphthalene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	4.44E-04	2.67E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	1.04E+01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.36E-04	1.42E-03	NA	7.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
78933	9.60E+01	Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.60E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	91.00	-6.28E+01	1.31E-02	6.10E+04	4.55E-01	1.73E-03	5.02E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	5.0E+00

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	2.40E+03	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.40E+03	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	2.66E+02	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	2.28E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
67641	1.50E+02	Acetone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,559	1.97E-05	8.47E-04	1.75E-04	2.01E-02	2.01E-02	2.01E-02	2.01E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-03	3.76E+03	91.00	-6.28E+01	2.01E-02	6.10E+04	5.98E-01	2.69E-03	1.01E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98862	8.00E+01	Acetophenone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100527	5.40E+02	Benzaldehyde

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	5.40E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	1.25E+03	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	1.92E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432	3.10E+02	Benzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	2.07E+05	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	3.91E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
92524	1.20E+02	Biphenyl

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.20E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
8.75E+00	5.02E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	4.09E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.8E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108907	1.80E+01	Chlorobenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.80E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	1.18E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.38E-01	2.46E+03	91.00	-6.28E+01	1.18E-02	6.10E+04	4.18E-01	1.55E-03	3.83E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	6.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100414	2.00E+01	Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
86737	2.10E+03	Fluorene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.10E+03	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	5.87E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.76E+01	4.86E+01	91.00	-6.28E+01	5.87E-03	6.10E+04	1.73E-01	7.20E-04	3.50E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.4E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	1.10E+03	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+03	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	6.97E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91203	9.00E+02	Naphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.00E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	1.46E+03	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	1.81E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
129000	3.20E+04	Pyrene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.20E+04	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	4.44E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.10E+02	1.13E+01	91.00	-6.28E+01	4.44E-03	6.10E+04	9.84E-02	5.06E-04	5.72E-03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	1.30E+04	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.30E+04	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	3.88E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	7.25E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106423	4.40E+02	p-Xylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	4.40E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	6.92E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	1.14E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75150	2.70E+01	Carbon disulfide

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
156592	1.00E+00	cis-1,2-Dichloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.10E-02	7.28E+02	91.00	-6.28E+01	1.19E-02	6.10E+04	4.21E-01	1.57E-03	1.14E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75718	3.00E+00	Dichlorodifluoromethane

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,386	1.62E-01	6.96E+00	1.75E-04	1.08E-02	1.08E-02	1.08E-02	1.08E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-01	9.11E+03	91.00	-6.28E+01	1.08E-02	6.10E+04	3.84E-01	1.41E-03	1.28E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98828	2.90E+01	Cumene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.90E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	1.05E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.77E-01	5.61E+03	91.00	-6.28E+01	1.05E-02	6.10E+04	3.75E-01	1.37E-03	7.71E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108872	8.00E+01	Methylcyclohexane

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,584	4.77E-02	2.05E+00	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.57E-01	2.80E+05	91.00	-6.28E+01	1.19E-02	6.10E+04	4.20E-01	1.57E-03	4.38E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
127184	1.50E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
78933	9.60E+01	Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.60E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	91.00	-6.28E+01	1.31E-02	6.10E+04	4.55E-01	1.73E-03	5.02E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	5.0E+00

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106467	8.00E+00	1,4-Dichlorobenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	1.12E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.23E+00	2.37E+02	91.00	-6.28E+01	1.12E-02	6.10E+04	3.97E-01	1.46E-03	3.47E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	8.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91576	9.00E+02	2-Methylnaphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.00E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	8.28E+02	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	8.99E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
91203	1.10E-01	Naphthalene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	10	152	52	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	2.84E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
10	7.19E-01	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.46E-04	1.05E-04	NA	3.0E-03

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	7.00E+00	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G28)					
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	7.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	4.43E+02	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	9.95E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	1.00E+00	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	2.99E+02	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	5.58E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432	1.17E+01	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.35E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	1.48E+00	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663	1.20E+00	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	5.54E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	9.62E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.23E-03	1.18E-01	2.3E-05	NA

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
100414	1.70E+01	Ethylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	2.32E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	2.29E+00	NA	1.0E+00

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
100414	1.18E+00	Ethylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.61E+02	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	1.59E-01	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
91203	1.14E+01	Naphthalene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	3.57E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	7.48E+01	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	9.12E-04	6.82E-02	NA	3.0E-03

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
75014	8.50E-01	Vinyl chloride (chloroethene)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	5.60E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	6.30E+02	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.24E-03	7.78E-01	8.8E-06	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432	1.17E+01	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
10	200	400	300	50	50	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	1.35E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	1.48E+00	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	8.06E+02	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.06E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	1.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98862	8.00E+01	Acetophenone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	0.10	8.33E+01	9.73E-03	4.00E+02	9.78E+92	1.68E-03	1.12E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100527	1.09E+02	Benzaldehyde

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G28)					
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.09E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	2.53E+02	0.10	8.33E+01	1.17E-02	4.00E+02	3.44E+77	1.83E-03	4.62E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432	1.16E+02	Benzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.16E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	7.75E+04	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.99E-03	1.54E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
92524	1.10E+02	Biphenyl

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.10E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
8.75E+00	4.60E+01	0.10	8.33E+01	6.53E-03	4.00E+02	3.28E+138	1.36E-03	6.24E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100414	2.00E+01	Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.86E-03	6.46E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	3.53E+02	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.53E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.46E+53	2.11E-03	4.73E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91203	3.70E+02	Naphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.70E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	5.99E+02	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	1.66E-03	9.97E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	4.00E+03	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	4.00E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	1.20E+06	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.98E-03	2.36E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106423	2.63E+02	p-Xylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.63E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	4.14E+04	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.88E-03	7.78E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75150	2.70E+01	Carbon disulfide

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.70E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.11E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
127184	1.50E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+01	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.83E-03	2.26E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	8.06E+02	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based soil concentration.	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.06E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	1.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91576	3.23E+02	2-Methylnaphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.23E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	200	200

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	2.97E+02	0.10	8.33E+01	8.44E-03	4.00E+02	1.63E+107	1.56E-03	4.65E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91576	3.23E-01	2-Methylnaphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.23E-01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	2.97E-01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	3.23E-04	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	8.06E+02	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98862	8.00E+01	Acetophenone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100527	1.09E+02	Benzaldehyde

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.09E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	2.53E+02	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	3.88E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432	1.16E+02	Benzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.16E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	7.75E+04	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	1.46E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
92524	1.10E+02	Biphenyl

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
8.75E+00	4.60E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	3.75E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75150	2.70E+01	Carbon disulfide

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100414	2.00E+01	Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	3.53E+02	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.53E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	5.02E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91203	3.74E+02	Naphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.74E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	6.06E+02	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	7.51E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
127184	1.50E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	3.98E+03	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.98E+03	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	1.19E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	2.22E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106423	2.63E+02	p-Xylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.63E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	4.14E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	6.79E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	8.06E+02	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
98862	8.00E+01	Acetophenone

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100527	1.09E+02	Benzaldehyde

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.09E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	2.53E+02	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	3.88E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432	1.16E+02	Benzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.16E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	7.75E+04	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	1.46E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
92524	1.10E+02	Biphenyl

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
8.75E+00	4.60E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	3.75E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.8E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
100414	2.00E+01	Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91203	3.74E+02	Naphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.74E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	6.06E+02	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	7.51E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883	3.98E+03	Toluene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.98E+03	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	1.19E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	2.22E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	4.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
106423	2.63E+02	p-Xylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.63E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	4.14E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	6.79E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
75150	2.70E+01	Carbon disulfide

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
79209	3.53E+02	Methyl acetate

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, h_B (Enter value or 0) (cm)	ENTER Thickness of soil stratum C, h_C (Enter value or 0) (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.53E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	5.02E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
127184	1.50E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES: X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
83329	8.06E+02	Acenaphthene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R ($\mu g/kg$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ ($\mu g/m^3$)	Finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Final finite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	2.1E-01

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
91576	3.23E-01	2-Methylnaphthalene

MORE ↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_T (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.23E-01	3.01E+03

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm^3/g)	Source vapor conc., C_{source} (µg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)	Finite source β term (unitless)	Finite source ψ term $(sec)^{-1}$	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	2.97E-01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	3.23E-04	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m^3)	Finite source bldg. conc., $C_{building}$ (µg/m^3)	Final finite source bldg. conc., $C_{building}$ (µg/m^3)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	NA	NA	NA	NA	7.0E-02

END

TABLE 1. DERMAL SCREENING - GROUNDWATER INORGANICS

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	Aluminum	1.3E+04	1.3E-02	1.0E-03	1.0E-03	2000	0.01	18000	0.58	1	**7.7E-06**	**52%**	Y
			Arsenic	1.2E+02	1.2E-04	1.0E-03	1.0E-03	2000	0.95	18000	0.58	1	**7.0E-08**	**1%**	N
			Cadmium	2.7E+01	2.7E-05	1.0E-03	1.0E-03	2000	0.025	18000	0.58	1	**1.6E-08**	**21%**	Y
			Chromium	1.3E+01	1.3E-05	2.0E-03	1.0E-03	2000	0.025	18000	0.58	1	**1.6E-08**	**42%**	Y
			Cobalt	3.3E+01	3.3E-05	4.0E-04	1.0E-03	2000	0.97	18000	0.58	1	**7.7E-09**	**0%**	N
			Iron	7.7E+04	7.7E-02	1.0E-03	1.0E-03	2000	0.5	18000	0.58	1	**4.5E-05**	**1%**	N
			Lead	7.9E+01	7.9E-05	1.0E-04	1.0E-03	2000	0.5	18000	0.58	1	**4.6E-09**	**0%**	N
			Manganese	5.8E+03	5.8E-03	1.0E-03	1.0E-03	2000	0.06	18000	0.58	1	**3.4E-06**	**9%**	N
			Nickel	7.8E+01	7.8E-05	2.0E-04	1.0E-03	2000	0.04	18000	0.58	1	**9.0E-09**	**3%**	N
			Silver	1.4E+01	1.4E-05	6.0E-04	1.0E-03	2000	0.04	18000	0.58	1	**4.8E-09**	**8%**	N
			Thallium	8.9E+00	8.9E-06	1.0E-03	1.0E-03	2000	1	18000	0.58	1	**5.2E-09**	**1%**	N
			Zinc	4.1E+03	4.1E-03	6.0E-04	1.0E-03	2000	0.5	18000	0.58	1	**1.4E-06**	**1%**	N
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	Aluminum	1.3E+04	1.3E-02	1.0E-03	1.0E-03	2000	0.01	6600	1	1	**1.3E-05**	**33%**	Y
			Arsenic	1.2E+02	1.2E-04	1.0E-03	1.0E-03	2000	0.95	6600	1	1	**1.2E-07**	**0%**	N
			Cadmium	2.7E+01	2.7E-05	1.0E-03	1.0E-03	2000	0.025	6600	1	1	**2.7E-08**	**13%**	Y
			Chromium	1.3E+01	1.3E-05	2.0E-03	1.0E-03	2000	0.025	6600	1	1	**2.7E-08**	**26%**	Y
			Cobalt	3.3E+01	3.3E-05	4.0E-04	1.0E-03	2000	0.97	6600	1	1	**1.3E-08**	**0%**	N
			Iron	7.7E+04	7.7E-02	1.0E-03	1.0E-03	2000	0.5	6600	1	1	**7.7E-05**	**1%**	N
			Lead	7.9E+01	7.9E-05	1.0E-04	1.0E-03	2000	0.5	6600	1	1	**7.9E-09**	**0%**	N
			Manganese	5.8E+03	5.8E-03	1.0E-03	1.0E-03	2000	0.06	6600	1	1	**5.8E-06**	**6%**	N
			Nickel	7.8E+01	7.8E-05	2.0E-04	1.0E-03	2000	0.04	6600	1	1	**1.6E-08**	**2%**	N
			Silver	1.4E+01	1.4E-05	6.0E-04	1.0E-03	2000	0.04	6600	1	1	**8.2E-09**	**5%**	N
			Thallium	8.9E+00	8.9E-06	1.0E-03	1.0E-03	2000	1	6600	1	1	**8.9E-09**	**0%**	N
			Zinc	4.1E+03	4.1E-03	6.0E-04	1.0E-03	2000	0.5	6600	1	1	**2.5E-06**	**0%**	N
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	Aluminum	1.3E+03	1.3E-03	1.0E-03	1.0E-03	2000	0.01	2100	0.2	1	**2.6E-07**	**2%**	N
			Arsenic	2.9E+01	2.9E-05	1.0E-03	1.0E-03	2000	0.95	2100	0.2	1	**5.8E-09**	**0%**	N
			Cadmium	2.2E+00	2.2E-06	1.0E-03	1.0E-03	2000	0.025	2100	0.2	1	**4.4E-10**	**1%**	N
			Chromium	1.7E+00	1.7E-06	2.0E-03	1.0E-03	2000	0.025	2100	0.2	1	**6.8E-10**	**2%**	N
			Cobalt	7.6E+00	7.6E-06	4.0E-04	1.0E-03	2000	0.97	2100	0.2	1	**6.1E-10**	**0%**	N
			Iron	2.4E+04	2.4E-02	1.0E-03	1.0E-03	2000	0.5	2100	0.2	1	**4.8E-06**	**0%**	N
			Lead	3.3E+00	3.3E-06	1.0E-04	1.0E-03	2000	0.5	2100	0.2	1	**6.6E-11**	**0%**	N
			Manganese	1.0E+03	1.0E-03	1.0E-03	1.0E-03	2000	0.06	2100	0.2	1	**2.0E-07**	**0%**	N
			Nickel	8.8E+00	8.8E-06	2.0E-04	1.0E-03	2000	0.04	2100	0.2	1	**3.5E-10**	**0%**	N
			Silver	2.0E+00	2.0E-06	6.0E-04	1.0E-03	2000	0.04	2100	0.2	1	**2.4E-10**	**0%**	N
			Thallium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	1	2100	0.2	1	**5.3E-10**	**0%**	N
			Zinc	2.7E+02	2.7E-04	6.0E-04	1.0E-03	2000	0.5	2100	0.2	1	**3.3E-08**	**0%**	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Concentration (mg/L*L/1000 cm3):	Conc =	0.001	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm)	= 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	SA=	18000	cm2
Event time (hr/event):	t_event =	0.58	hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1	event/day
Exposure frequency (days/year):	EF =	350	days/yr
Exposure duration (years):	ED =	30	years
Body weight (kg):	BW =	70	kg
Averaging time (days):	AT =	25550	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV
Drinking (mg/day) = Conc * IR * ABSIG

IR: Ingestion rate of drinking water	IR =	2000	(cm3/day = L/day * 1000 cm3/L)
ABSIG: Absorption fraction in GI tract	Chemical specific		
Condition for screening: "Y" when Dermal is 10% of Drinking			

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min)	Q =	1135500	(cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

Refer to Appendix A for equations to evaluate DA_event and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm3)	DA_event (mg/cm2-event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Antimony	1.0E-03	default	1.0E-03	5.8E-07	6.2E-05	15%	3.50%	N	0.00%

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)																				
			1,4-Dioxane	5.5E+01	5.5E-05	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	8.0E+00	8.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	3.6E-01	3.6E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	2.6E-01	2.6E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.8E-01	3.8E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	5.0E+01	5.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	4.8E-01	4.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	2.8E+00	2.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E+01	1.4E-05	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	5.9E+00	5.9E-06	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	4.4E+00	4.4E-06	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	8.4E+00	8.4E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	1.1E+03	1.1E-03	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	3.2E-01	3.2E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	9.3E+01	9.3E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	2.1E+00	2.1E-06	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	3.9E+00	3.9E-06	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	1.7E+01	1.7E-05	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	1.6E+02	1.6E-04	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	2.1E+01	2.1E-05	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	2.5E+00	2.5E-06	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	4.9E+00	4.9E-06	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	4.1E+00	4.1E-06	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	1.2E+00	1.2E-06	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	5.1E+01	5.1E-05	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	6.7E-03	6.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	5.6E-03	5.6E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	8.3E-03	8.3E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	8.2E-03	8.2E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	1.6E-02	1.6E-08	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)																				
			1,4-Dioxane	5.5E+01	5.5E-05	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	8.0E+00	8.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	3.6E-01	3.6E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	2.6E-01	2.6E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.8E-01	3.8E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	5.0E+01	5.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	4.8E-01	4.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	2.8E+00	2.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E+01	1.4E-05	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	5.9E+00	5.9E-06	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)								
			1,4-Dioxane	0.79	18000	0.58	1	2.2E-08	0%	N
			2,4-Dimethylphenol	1.22	18000	0.58	1	1.3E-07	15%	Y
			2-Chlorophenol	1.32	18000	0.58	1	4.2E-09	11%	Y
			4-Chloroaniline	1.31	18000	0.58	1	1.1E-08	7%	N
			Atrazine	4.07	18000	0.58	1	4.5E-08	13%	Y
			Benzaldehyde	0.99	18000	0.58	1	5.6E-09	5%	N
			Benzo(a)anthracene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	0.58	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	0.58	1	8.5E-06	152%	Y
			Carbazole	2.18	18000	0.58	1	5.2E-08	97%	Y
			Dibenzofuran	4.44	18000	0.58	1	5.9E-07	189%	Y
			Indeno(1,2,3-cd)pyrene	N/A	18000	0.58	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	0.58	1	1.0E-06	65%	Y
			Phenanthrene	N/A	18000	0.58	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	18000	0.58	1	3.5E-08	131%	Y
			1,2-Dichlorobenzene	1.68	18000	0.58	1	3.2E-07	66%	Y
			1,3-Dichlorobenzene	1.68	18000	0.58	1	7.0E-08	92%	Y
			1,4-Dichlorobenzene	1.68	18000	0.58	1	6.2E-07	67%	Y
			2-Butanone	0.64	18000	0.58	1	1.4E-09	1%	N
			Benzene	0.69	18000	0.58	1	1.8E-05	15%	Y
			Bromodichloromethane	2.09	18000	0.58	1	2.9E-09	8%	N
			Chlorobenzene	1.08	18000	0.58	1	3.7E-06	36%	Y
			Chloroethane	0.58	18000	0.58	1	1.4E-08	6%	N
			Chloroform	1.18	18000	0.58	1	3.9E-08	9%	N
			Ethylbenzene	0.99	18000	0.58	1	1.1E-06	60%	Y
			Isopropylbenzene	1.19	18000	0.58	1	1.7E-05	93%	Y
			Methyl tert-butyl ether	0.79	18000	0.58	1	5.3E-08	2%	N
			Tetrachloroethene	2.14	18000	0.58	1	1.7E-07	60%	Y
			Toluene	0.83	18000	0.58	1	1.9E-07	35%	Y
			Trichloroethene	1.37	18000	0.58	1	7.6E-08	17%	Y
			Vinyl Chloride	0.57	18000	0.58	1	7.0E-09	5%	N
			Xylene (Total)	0.99	18000	0.58	1	3.4E-06	60%	Y
			Aroclor-1242	N/A	18000	0.58	1	N/A	N/A	N/A
			Aroclor-1248	N/A	18000	0.58	1	N/A	N/A	N/A
			Aroclor-1254	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	0.58	1	N/A	N/A	N/A
			Aldrin	27.93	18000	0.58	1	6.0E-11	9%	N
			alpha-BHC	10.73	18000	0.58	1	1.9E-10	50%	Y
			Dieldrin	34.33	18000	0.58	1	6.5E-10	70%	Y
			Endosulfan Sulfate	58.93	18000	0.58	1	1.5E-10	17%	Y
			Gamma-BHC (Lindane)	10.76	18000	0.58	1	6.9E-10	39%	Y
			Heptachlor	31.16	18000	0.58	1	2.4E-10	47%	Y
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)								
			1,4-Dioxane	0.79	6600	1	1	3.0E-08	0%	N
			2,4-Dimethylphenol	1.22	6600	1	1	1.7E-07	7%	N
			2-Chlorophenol	1.32	6600	1	1	5.6E-09	5%	N
			4-Chloroaniline	1.31	6600	1	1	1.4E-08	3%	N
			Atrazine	4.07	6600	1	1	5.9E-08	6%	N
			Benzaldehyde	0.99	6600	1	1	7.6E-09	2%	N
			Benzo(a)anthracene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	6600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	6600	1	1	1.1E-05	73%	Y
			Carbazole	2.18	6600	1	1	6.8E-08	47%	Y
			Dibenzofuran	4.44	6600	1	1	7.7E-07	91%	Y
			Indeno(1,2,3-cd)pyrene	N/A	6600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	6600	1	1	1.3E-06	32%	Y
			Phenanthrene	N/A	6600	1	1	N/A	N/A	N/A

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	4.4E+00	4.4E-06	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	8.4E+00	8.4E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	1.1E+03	1.1E-03	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	3.2E-01	3.2E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	9.3E+01	9.3E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	2.1E+00	2.1E-06	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	3.9E+00	3.9E-06	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	1.7E+01	1.7E-05	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	1.6E+02	1.6E-04	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	2.1E+01	2.1E-05	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	2.5E+00	2.5E-06	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	4.9E+00	4.9E-06	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	4.1E+00	4.1E-06	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	1.2E+00	1.2E-06	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	5.1E+01	5.1E-05	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	6.7E-03	6.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	5.6E-03	5.6E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	8.3E-03	8.3E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	8.2E-03	8.2E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	1.6E-02	1.6E-08	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	7.0E+00	7.0E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	3.0E+00	3.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.8E-02	2.8E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	4.4E+00	4.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	4.8E-01	4.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	8.5E-01	8.5E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	7.6E-01	7.6E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	9.3E-01	9.3E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	1.0E+02	1.0E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	ND	N/A	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	5.5E+00	5.5E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	2.1E+00	2.1E-06	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	6.4E-01	6.4E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	1.3E+00	1.3E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	9.6E+00	9.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	1.6E+00	1.6E-06	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	ND	N/A	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	5.8E-01	5.8E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	5.9E-01	5.9E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	6.3E-01	6.3E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			1,2,4-Trichlorobenzene	2.62	6600	1	1	**4.6E-08**	**63%**	Y
			1,2-Dichlorobenzene	1.68	6600	1	1	**4.2E-07**	**32%**	Y
			1,3-Dichlorobenzene	1.68	6600	1	1	**9.2E-08**	**44%**	Y
			1,4-Dichlorobenzene	1.68	6600	1	1	**8.2E-07**	**32%**	Y
			2-Butanone	0.64	6600	1	1	**1.9E-09**	**0%**	N
			Benzene	0.69	6600	1	1	**2.5E-05**	**8%**	N
			Bromodichloromethane	2.09	6600	1	1	**3.8E-09**	**4%**	N
			Chlorobenzene	1.08	6600	1	1	**4.9E-06**	**17%**	Y
			Chloroethane	0.58	6600	1	1	**1.9E-08**	**3%**	N
			Chloroform	1.18	6600	1	1	**5.2E-08**	**4%**	N
			Ethylbenzene	0.99	6600	1	1	**1.5E-06**	**30%**	Y
			Isopropylbenzene	1.19	6600	1	1	**2.2E-05**	**45%**	Y
			Methyl tert-butyl ether	0.79	6600	1	1	**7.3E-08**	**1%**	N
			Tetrachloroethene	2.14	6600	1	1	**2.2E-07**	**29%**	Y
			Toluene	0.83	6600	1	1	**2.5E-07**	**17%**	Y
			Trichloroethene	1.37	6600	1	1	**1.0E-07**	**8%**	N
			Vinyl Chloride	0.57	6600	1	1	**9.8E-09**	**3%**	N
			Xylene (Total)	0.99	6600	1	1	**4.6E-06**	**30%**	Y
			Aroclor-1242	N/A	6600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1248	N/A	6600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1254	N/A	6600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	6600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	6600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	6600	1	1	**N/A**	**N/A**	N/A
			Aldrin	27.93	6600	1	1	**7.9E-11**	**4%**	N
			alpha-BHC	10.73	6600	1	1	**2.5E-10**	**24%**	Y
			Dieldrin	34.33	6600	1	1	**8.5E-10**	**34%**	Y
			Endosulfan Sulfate	58.93	6600	1	1	**2.0E-10**	**8%**	N
			Gamma-BHC (Lindane)	10.76	6600	1	1	**9.1E-10**	**19%**	Y
			Heptachlor	31.16	6600	1	1	**3.2E-10**	**23%**	Y
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	0.79	2100	0.2	1	**1.6E-09**	**0%**	N
			2,4-Dimethylphenol	1.22	2100	0.2	1	**2.9E-08**	**1%**	N
			2-Chlorophenol	1.32	2100	0.2	1	**2.5E-09**	**1%**	N
			4-Chloroaniline	1.31	2100	0.2	1	**6.3E-09**	**0%**	N
			Atrazine	4.07	2100	0.2	1	**2.7E-08**	**1%**	N
			Benzaldehyde	0.99	2100	0.2	1	**3.3E-09**	**0%**	N
			Benzo(a)anthracene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2100	0.2	1	**4.4E-07**	**10%**	Y
			Carbazole	2.18	2100	0.2	1	**3.0E-08**	**7%**	N
			Dibenzofuran	4.44	2100	0.2	1	**5.2E-08**	**13%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	2100	0.2	1	**3.6E-08**	**4%**	N
			Phenanthrene	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			1,2,4-Trichlorobenzene	2.62	2100	0.2	1	**2.1E-08**	**9%**	N
			1,2-Dichlorobenzene	1.68	2100	0.2	1	**3.2E-08**	**4%**	N
			1,3-Dichlorobenzene	1.68	2100	0.2	1	**4.1E-08**	**6%**	N
			1,4-Dichlorobenzene	1.68	2100	0.2	1	**4.0E-08**	**5%**	N
			2-Butanone	0.64	2100	0.2	1	**8.0E-10**	**0%**	N
			Benzene	0.69	2100	0.2	1	**1.0E-06**	**1%**	N
			Bromodichloromethane	2.09	2100	0.2	1	**N/A**	**N/A**	N/A
			Chlorobenzene	1.08	2100	0.2	1	**1.3E-07**	**2%**	N
			Chloroethane	0.58	2100	0.2	1	**7.7E-09**	**0%**	N
			Chloroform	1.18	2100	0.2	1	**3.8E-09**	**1%**	N
			Ethylbenzene	0.99	2100	0.2	1	**5.1E-08**	**4%**	N
			Isopropylbenzene	1.19	2100	0.2	1	**5.9E-07**	**6%**	N
			Methyl tert-butyl ether	0.79	2100	0.2	1	**2.4E-09**	**0%**	N
			Tetrachloroethene	2.14	2100	0.2	1	**N/A**	**N/A**	N/A
			Toluene	0.83	2100	0.2	1	**1.3E-08**	**2%**	N
			Trichloroethene	1.37	2100	0.2	1	**6.5E-09**	**1%**	N
			Vinyl Chloride	0.57	2100	0.2	1	**2.1E-09**	**0%**	N
			Xylene (Total)	0.99	2100	0.2	1	**8.0E-08**	**4%**	N

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	3.9E-03	3.9E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	ND	N/A	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	8.5E-03	8.5E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			Aroclor-1242	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aroclor-1248	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aroclor-1254	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aldrin	27.93	2100	0.2	1	**3.5E-11**	**1%**	N
			alpha-BHC	10.73	2100	0.2	1	**1.1E-10**	**3%**	N
			Dieldrin	34.33	2100	0.2	1	**N/A**	**N/A**	N/A
			Endosulfan Sulfate	58.93	2100	0.2	1	**N/A**	**N/A**	N/A
			Gamma-BHC (Lindane)	10.76	2100	0.2	1	**2.2E-10**	**3%**	N
			Heptachlor	31.16	2100	0.2	1	**1.4E-10**	**3%**	N

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)																				
			1,4-Dioxane	4.8E+00	4.8E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	2.1E+00	2.1E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	1.8E+00	1.8E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	4.3E-02	4.3E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.9E-02	3.9E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	4.2E-02	4.2E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	2.4E+00	2.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	2.8E-01	2.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	1.8E+00	1.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	3.8E-02	3.8E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.2E-01	2.2E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	4.0E-01	4.0E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	2.8E-01	2.8E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	9.2E-01	9.2E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	2.2E+01	2.2E-05	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	2.7E-01	2.7E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	5.6E+00	5.6E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	4.0E-01	4.0E-07	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	4.7E-01	4.7E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	4.4E-01	4.4E-07	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	3.6E+00	3.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	5.4E-01	5.4E-07	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	3.0E-01	3.0E-07	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	3.4E-01	3.4E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	3.3E-01	3.3E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	2.9E-01	2.9E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Aroclor-1242	5.2E-02	5.2E-08	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	5.1E-02	5.1E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.4E-02	5.4E-08	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	2.7E-03	2.7E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	2.6E-03	2.6E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	1.8E-03	1.8E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	1.8E-03	1.8E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.7E-03	2.7E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	2.7E-03	2.7E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	1.9E-03	1.9E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	1.8E-03	1.8E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)																				
			1,4-Dioxane	4.8E+00	4.8E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	2.1E+00	2.1E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	1.8E+00	1.8E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	4.3E-02	4.3E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.9E-02	3.9E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	4.2E-02	4.2E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	2.4E+00	2.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	2.8E-01	2.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	1.8E+00	1.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	3.8E-02	3.8E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.2E-01	2.2E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)								
			1,4-Dioxane	0.79	18000	0.25	1	**1.2E-09**	**0%**	N
			2,4-Dimethylphenol	1.22	18000	0.25	1	**2.3E-08**	**10%**	N
			2-Chlorophenol	1.32	18000	0.25	1	**2.8E-09**	**7%**	N
			4-Chloroaniline	1.31	18000	0.25	1	**7.1E-09**	**5%**	N
			Atrazine	4.07	18000	0.25	1	**1.7E-08**	**8%**	N
			Benzaldehyde	0.99	18000	0.25	1	**3.7E-09**	**3%**	N
			Benzo(a)anthracene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	0.25	1	**2.7E-07**	**100%**	Y
			Carbazole	2.18	18000	0.25	1	**1.9E-08**	**63%**	Y
			Dibenzofuran	4.44	18000	0.25	1	**2.5E-07**	**124%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	0.25	1	**1.0E-08**	**43%**	Y
			Phenanthrene	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			1,2,4-Trichlorobenzene	2.62	18000	0.25	1	**2.3E-08**	**86%**	Y
			1,2-Dichlorobenzene	1.68	18000	0.25	1	**1.9E-08**	**43%**	Y
			1,3-Dichlorobenzene	1.68	18000	0.25	1	**1.9E-08**	**60%**	Y
			1,4-Dichlorobenzene	1.68	18000	0.25	1	**4.5E-08**	**44%**	Y
			2-Butanone	0.64	18000	0.25	1	**8.9E-10**	**1%**	N
			Benzene	0.69	18000	0.25	1	**2.4E-07**	**10%**	N
			Bromodichloromethane	2.09	18000	0.25	1	**1.6E-09**	**5%**	N
			Chlorobenzene	1.08	18000	0.25	1	**1.5E-07**	**24%**	Y
			Chloroethane	0.58	18000	0.25	1	**1.6E-09**	**4%**	N
			Chloroform	1.18	18000	0.25	1	**3.1E-09**	**6%**	N
			Ethylbenzene	0.99	18000	0.25	1	**1.9E-08**	**39%**	Y
			Isopropylbenzene	1.19	18000	0.25	1	**2.4E-07**	**61%**	Y
			Methyl tert-butyl ether	0.79	18000	0.25	1	**9.1E-10**	**2%**	N
			Tetrachloroethene	2.14	18000	0.25	1	**1.3E-08**	**39%**	Y
			Toluene	0.83	18000	0.25	1	**8.5E-09**	**23%**	Y
			Trichloroethene	1.37	18000	0.25	1	**4.0E-09**	**11%**	Y
			Vinyl Chloride	0.57	18000	0.25	1	**1.1E-09**	**3%**	N
			Xylene (Total)	0.99	18000	0.25	1	**8.6E-08**	**39%**	Y
			Aroclor-1242	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Aroclor-1248	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Aroclor-1254	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	0.25	1	**N/A**	**N/A**	N/A
			Aldrin	27.93	18000	0.25	1	**1.2E-11**	**6%**	N
			alpha-BHC	10.73	18000	0.25	1	**6.5E-11**	**33%**	Y
			Dieldrin	34.33	18000	0.25	1	**1.4E-10**	**46%**	Y
			Endosulfan Sulfate	58.93	18000	0.25	1	**3.3E-11**	**11%**	Y
			Gamma-BHC (Lindane)	10.76	18000	0.25	1	**5.6E-11**	**26%**	Y
			Heptachlor	31.16	18000	0.25	1	**6.2E-11**	**31%**	Y
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)								
			1,4-Dioxane	0.79	6600	0.33	1	**1.4E-09**	**0%**	N
			2,4-Dimethylphenol	1.22	6600	0.33	1	**2.6E-08**	**4%**	N
			2-Chlorophenol	1.32	6600	0.33	1	**3.2E-09**	**3%**	N
			4-Chloroaniline	1.31	6600	0.33	1	**8.1E-09**	**2%**	N
			Atrazine	4.07	6600	0.33	1	**2.0E-08**	**4%**	N
			Benzaldehyde	0.99	6600	0.33	1	**4.3E-09**	**1%**	N
			Benzo(a)anthracene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	6600	0.33	1	**3.1E-07**	**42%**	Y
			Carbazole	2.18	6600	0.33	1	**2.2E-08**	**27%**	Y
			Dibenzofuran	4.44	6600	0.33	1	**2.9E-07**	**52%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	6600	0.33	1	**1.2E-08**	**18%**	Y
			Phenanthrene	N/A	6600	0.33	1	**N/A**	**N/A**	N/A

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	4.0E-01	4.0E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	2.8E-01	2.8E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	9.2E-01	9.2E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	2.2E+01	2.2E-05	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	2.7E-01	2.7E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	5.6E+00	5.6E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	4.0E-01	4.0E-07	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	4.7E-01	4.7E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	4.4E-01	4.4E-07	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	3.6E+00	3.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	5.4E-01	5.4E-07	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	3.0E-01	3.0E-07	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	3.4E-01	3.4E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	3.3E-01	3.3E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	2.9E-01	2.9E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Aroclor-1242	5.2E-02	5.2E-08	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	5.1E-02	5.1E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.4E-02	5.4E-08	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	2.7E-03	2.7E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	2.6E-03	2.6E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	1.8E-03	1.8E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	1.8E-03	1.8E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.7E-03	2.7E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	2.7E-03	2.7E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	1.9E-03	1.9E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	1.8E-03	1.8E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	7.0E+00	7.0E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.0E-01	3.3E-01	N/A	0.79
			2,4-Dimethylphenol	3.0E+00	3.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	**0.51**	1.0	-3.48E+00	3.28E-04	**3.28E-07**	3.3E-01	3.6E-01	N/A	1.22
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	**0.55**	1.0	-3.52E+00	3.02E-04	**3.02E-07**	3.2E-01	3.6E-01	N/A	1.32
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	**0.55**	1.0	-3.51E+00	3.06E-04	**3.06E-07**	3.2E-01	3.5E-01	N/A	1.31
			Atrazine	1.8E+00	1.8E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	3.1E-01	3.4E-01	N/A	0.99
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.8E-02	2.8E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			bis(2-Ethylhexyl)phthalat	4.4E+00	4.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Carbazole	2.9E-01	2.9E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	**0.91**	1.0	-3.74E+00	1.84E-04	**1.84E-07**	4.9E-01	5.3E-01	N/A	2.18
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	8.5E-01	8.5E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	**1.09**	1.0	-3.82E+00	1.53E-04	**1.53E-07**	5.6E-01	5.9E-01	N/A	2.62
			1,2-Dichlorobenzene	7.6E-01	7.6E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.3E-01	4.7E-01	N/A	1.68
			1,3-Dichlorobenzene	3.0E-01	3.0E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.9E-01	5.3E-01	N/A	1.68
			1,4-Dichlorobenzene	9.3E-01	9.3E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	**0.27**	1.0	-3.20E+00	6.26E-04	**6.26E-07**	3.1E-01	3.4E-01	N/A	0.64
			Benzene	1.0E+02	1.0E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Bromodichloromethane	ND	N/A	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	**0.87**	1.0	-3.72E+00	1.92E-04	**1.92E-07**	3.2E-01	3.5E-01	N/A	2.09
			Chlorobenzene	5.5E+00	5.5E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Chloroethane	4.7E-01	4.7E-07	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	**0.24**	1.0	-3.16E+00	6.90E-04	**6.90E-07**	3.1E-01	3.5E-01	N/A	0.58
			Chloroform	6.4E-01	6.4E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	**0.49**	1.0	-3.47E+00	3.40E-04	**3.40E-07**	3.2E-01	3.5E-01	N/A	1.18
			Ethylbenzene	1.3E+00	1.3E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Isopropylbenzene	9.6E+00	9.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	**0.50**	1.0	-3.47E+00	3.36E-04	**3.36E-07**	5.2E-01	5.5E-01	N/A	1.19
			Methyl tert-butyl ether	1.6E+00	1.6E-06	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	**0.33**	1.0	-3.29E+00	5.09E-04	**5.09E-07**	3.1E-01	3.4E-01	N/A	0.79
			Tetrachloroethene	ND	N/A	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	**0.89**	1.0	-3.73E+00	1.87E-04	**1.87E-07**	4.1E-01	4.5E-01	N/A	2.14
			Toluene	5.8E-01	5.8E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	**0.34**	1.0	-3.32E+00	4.83E-04	**4.83E-07**	3.8E-01	4.1E-01	N/A	0.83
			Trichloroethene	5.9E-01	5.9E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	**0.57**	1.0	-3.54E+00	2.91E-04	**2.91E-07**	3.4E-01	3.7E-01	N/A	1.37
			Vinyl Chloride	6.3E-01	6.3E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	**0.24**	1.0	-3.15E+00	7.08E-04	**7.08E-07**	3.1E-01	3.4E-01	N/A	0.57
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			1,2,4-Trichlorobenzene	2.62	6600	0.33	1	2.6E-08	36%	Y
			1,2-Dichlorobenzene	1.68	6600	0.33	1	2.2E-08	18%	Y
			1,3-Dichlorobenzene	1.68	6600	0.33	1	2.1E-08	25%	Y
			1,4-Dichlorobenzene	1.68	6600	0.33	1	5.1E-08	18%	Y
			2-Butanone	0.64	6600	0.33	1	1.0E-09	0%	N
			Benzene	0.69	6600	0.33	1	2.8E-07	4%	N
			Bromodichloromethane	2.09	6600	0.33	1	1.9E-09	2%	N
			Chlorobenzene	1.08	6600	0.33	1	1.7E-07	10%	N
			Chloroethane	0.58	6600	0.33	1	1.9E-09	2%	N
			Chloroform	1.18	6600	0.33	1	3.6E-09	3%	N
			Ethylbenzene	0.99	6600	0.33	1	2.2E-08	17%	Y
			Isopropylbenzene	1.19	6600	0.33	1	2.8E-07	26%	Y
			Methyl tert-butyl ether	0.79	6600	0.33	1	1.0E-09	1%	N
			Tetrachloroethene	2.14	6600	0.33	1	1.5E-08	17%	Y
			Toluene	0.83	6600	0.33	1	9.7E-09	10%	N
			Trichloroethene	1.37	6600	0.33	1	4.6E-09	5%	N
			Vinyl Chloride	0.57	6600	0.33	1	1.3E-09	1%	N
			Xylene (Total)	0.99	6600	0.33	1	9.9E-08	17%	Y
			Aroclor-1242	N/A	6600	0.33	1	N/A	N/A	N/A
			Aroclor-1248	N/A	6600	0.33	1	N/A	N/A	N/A
			Aroclor-1254	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDD	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDE	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDT	N/A	6600	0.33	1	N/A	N/A	N/A
			Aldrin	27.93	6600	0.33	1	1.4E-11	3%	N
			alpha-BHC	10.73	6600	0.33	1	7.4E-11	14%	Y
			Dieldrin	34.33	6600	0.33	1	1.6E-10	19%	Y
			Endosulfan Sulfate	58.93	6600	0.33	1	3.8E-11	5%	N
			Gamma-BHC (Lindane)	10.76	6600	0.33	1	6.4E-11	11%	Y
			Heptachlor	31.16	6600	0.33	1	7.1E-11	13%	Y
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	0.79	2100	0.2	1	1.6E-09	0%	N
			2,4-Dimethylphenol	1.22	2100	0.2	1	2.9E-08	1%	N
			2-Chlorophenol	1.32	2100	0.2	1	2.5E-09	1%	N
			4-Chloroaniline	1.31	2100	0.2	1	6.3E-09	0%	N
			Atrazine	4.07	2100	0.2	1	1.5E-08	1%	N
			Benzaldehyde	0.99	2100	0.2	1	3.3E-09	0%	N
			Benzo(a)anthracene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	2100	0.2	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2100	0.2	1	4.4E-07	10%	Y
			Carbazole	2.18	2100	0.2	1	1.8E-08	7%	N
			Dibenzofuran	4.44	2100	0.2	1	5.2E-08	13%	Y
			Indeno(1,2,3-cd)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Naphthalene	1.32	2100	0.2	1	3.6E-08	4%	N
			Phenanthrene	N/A	2100	0.2	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	2100	0.2	1	2.1E-08	9%	N
			1,2-Dichlorobenzene	1.68	2100	0.2	1	3.2E-08	4%	N
			1,3-Dichlorobenzene	1.68	2100	0.2	1	1.8E-08	6%	N
			1,4-Dichlorobenzene	1.68	2100	0.2	1	4.0E-08	5%	N
			2-Butanone	0.64	2100	0.2	1	8.0E-10	0%	N
			Benzene	0.69	2100	0.2	1	1.0E-06	1%	N
			Bromodichloromethane	2.09	2100	0.2	1	N/A	N/A	N/A
			Chlorobenzene	1.08	2100	0.2	1	1.3E-07	2%	N
			Chloroethane	0.58	2100	0.2	1	1.7E-09	0%	N
			Chloroform	1.18	2100	0.2	1	3.8E-09	1%	N
			Ethylbenzene	0.99	2100	0.2	1	5.1E-08	4%	N
			Isopropylbenzene	1.19	2100	0.2	1	5.9E-07	6%	N
			Methyl tert-butyl ether	0.79	2100	0.2	1	2.4E-09	0%	N
			Tetrachloroethene	2.14	2100	0.2	1	N/A	N/A	N/A
			Toluene	0.83	2100	0.2	1	1.3E-08	2%	N
			Trichloroethene	1.37	2100	0.2	1	6.5E-09	1%	N
			Vinyl Chloride	0.57	2100	0.2	1	2.1E-09	0%	N
			Xylene (Total)	0.99	2100	0.2	1	8.0E-08	4%	N

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1248	5.3E-02	5.3E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	**7.13**	1.0	-4.63E+00	2.34E-05	**2.34E-08**	N/A	N/A	N/A	17.11
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	3.9E-03	3.9E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	2.7E-03	2.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			Aldrin	1.9E-03	1.9E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	**11.64**	1.0	-4.84E+00	1.43E-05	**1.43E-08**	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	1.9E-03	1.9E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	ND	N/A	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	**24.55**	1.0	-5.17E+00	6.79E-06	**6.79E-09**	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	8.5E-03	8.5E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	**4.48**	0.9	-4.43E+00	3.72E-05	**3.72E-08**	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	1.9E-03	1.9E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	**12.99**	0.8	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	N/A	31.16

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			Aroclor-1242	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aroclor-1248	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aroclor-1254	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	2100	0.2	1	**N/A**	**N/A**	N/A
			Aldrin	27.93	2100	0.2	1	**1.1E-11**	**1%**	N
			alpha-BHC	10.73	2100	0.2	1	**6.1E-11**	**3%**	N
			Dieldrin	34.33	2100	0.2	1	**N/A**	**N/A**	N/A
			Endosulfan Sulfate	58.93	2100	0.2	1	**N/A**	**N/A**	N/A
			Gamma-BHC (Lindane)	10.76	2100	0.2	1	**2.2E-10**	**3%**	N
			Heptachlor	31.16	2100	0.2	1	**5.8E-11**	**3%**	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR ORGANIC CHEMICALS IN WATER (updated on 11/99)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (updated 11/99)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells G5-G18

Concentration (mg/L*L/1000 cm3):	Conc =	1.0E-03	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm)	= 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	A =	5672.0	cm2
Event time (hr/event):	t_event =	0.5	hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1.0	event/day
Exposure frequency (days/year):	EF =	26.0	days/yr
Exposure duration (years):	ED =	7.0	years
Body weight (kg):	BW =	70.0	kg
Averaging time (days):	AT =	2555.0	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			
Skin thickness (assumed to be 10 um):	lsc =	1.0E-03	cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000.0	(cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0	(assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data

95% LCI and UCI are evaluated by Dr. Paul Pinsky in NCEA using SAS

	CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Chemicals outside EPD (*)	Derm/ Drink Kp	Chem Assess	B	tau (hr)	t_star (hr)
118	Heptachlor	76448	373.5	4.27	3.4E-04	8.6E-03		2.2E-01		**14%**	Y	0.1	**12.99**	31.16

FA for tau>3	Conc (mg/cm3)	DA_event (mg/cm2-evt)	DAD (mg/kg-day)	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
0.8	1.4E-09	**6.8E-11**	**3.9E-10**	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	#NUM!	31.16

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.58	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.58	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.58	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.58	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.58	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.58	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.58	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.58	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.58	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.58	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.58	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.58	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.58	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.58	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.58	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.58	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.58	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.58	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.58	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.58	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.58	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.58	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.58	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.58	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.58	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.58	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.58	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.58	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.58	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.58	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.58	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.58	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	1	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	1	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	1	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	1	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	1	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	1	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	1	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	1	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	1	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	1	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	1	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	1	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	1	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	1	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	1	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	1	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	1	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	1	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	1	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Const. Worker -	Site-Wide Shallow													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.2	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.2	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.2	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.2	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.2	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.2	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.2	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.2	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.2	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.2	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.2	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.2	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.2	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.2	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.2	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.2	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.2	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.2	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.2	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.2	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.2	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.2	hr/event	12.99	hr	31.16	hr	0.0643

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.25	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.25	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.25	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.25	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.25	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.25	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.25	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.25	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.25	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.25	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.25	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.25	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.25	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.25	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.25	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.25	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.25	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.25	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.25	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.25	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.25	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.25	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.25	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.25	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.25	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.25	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.25	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.25	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.25	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.25	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.25	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.25	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.33	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.33	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.33	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.33	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.33	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.33	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.33	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.33	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.33	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.33	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.33	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.33	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.33	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.33	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.33	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.33	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.33	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.33	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.33	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.33	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.33	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.33	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.33	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.33	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.33	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.33	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.33	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.33	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.33	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.33	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.33	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.33	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Const. Worker -	Site-Wide Shallow													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.2	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.2	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.2	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.2	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.2	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.2	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.2	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.2	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.2	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.2	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.2	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.2	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.2	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.2	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.2	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.2	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.2	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.2	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.2	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.2	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.2	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.2	hr/event	12.99	hr	31.16	hr	0.0643

FA = Fraction Absorbed Water
Kp = Dermal PeCTability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the PeCTability Coefficient of a Compound Through the Stratum Corneum Relative to its PeCTability Coefficient Across the Viable Epidermis

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	3700	1	1	**9.9E-08**	**19%**	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	3700	1	1	**6.6E-10**	**1%**	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	3700	1	1	**6.9E-08**	**0%**	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	3700	1	1	**2.8E-07**	**3%**	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	3700	1	1	**N/A**	**N/A**	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	3700	1	1	**3.8E-10**	**7%**	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	3700	1	1	**4.3E-09**	**15%**	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	3700	1	1	**9.2E-10**	**0%**	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	3700	1	1	**1.2E-09**	**0%**	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	3700	1	1	**2.8E-09**	**0%**	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	3700	1	1	**3.8E-05**	**0%**	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	3700	1	1	**8.3E-11**	**0%**	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	3700	1	1	**1.8E-06**	**3%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	3700	1	1	**N/A**	**N/A**	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	3700	1	1	**1.9E-09**	**1%**	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	3700	1	1	**4.4E-09**	**3%**	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	3700	1	1	**3.5E-09**	**0%**	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	3700	1	1	**2.4E-09**	**7%**	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	3700	1	1	**1.8E-08**	**0%**	N
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	7600	1	1	**3.3E-06**	**38%**	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	**3.2E-09**	**0%**	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	7600	1	1	**1.4E-09**	**15%**	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	7600	1	1	**2.7E-08**	**30%**	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	7600	1	1	**N/A**	**N/A**	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	7600	1	1	**7.0E-08**	**1%**	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	7600	1	1	**3.6E-09**	**1%**	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	7600	1	1	**1.0E-05**	**1%**	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	7600	1	1	**2.2E-09**	**0%**	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	**5.7E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7600	1	1	**N/A**	**N/A**	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	**2.6E-09**	**15%**	Y
Current	Rec. User - Adult wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**6.5E-07**	**37%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**1.7E-09**	**0%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**6.7E-10**	**15%**	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**6.8E-09**	**29%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**4.7E-09**	**1%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**2.0E-06**	**1%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**4.7E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**1.4E-09**	**14%**	Y
Current	Rec. User - Older Child wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**6.5E-07**	**21%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**1.7E-09**	**0%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**6.7E-10**	**8%**	N
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**6.8E-09**	**17%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**4.7E-09**	**0%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**2.0E-06**	**0%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**4.7E-07**	**3%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**1.4E-09**	**8%**	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	7600	1	1	**2.1E-06**	**38%**	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	**4.6E-09**	**0%**	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	7600	1	1	**4.7E-10**	**15%**	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	7600	1	1	**1.7E-08**	**30%**	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	7600	1	1	**2.6E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7600	1	1	**N/A**	**N/A**	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7600	1	1	**N/A**	**N/A**	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	7600	1	1	**3.7E-06**	**1%**	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	7600	1	1	**8.6E-10**	**0%**	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	**3.0E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7600	1	1	**N/A**	**N/A**	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	**4.2E-09**	**15%**	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	7600	1	1	**1.7E-05**	**38%**	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	7600	1	1	**1.1E-08**	**0%**	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	7600	1	1	**1.6E-08**	**15%**	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	7600	1	1	**4.3E-07**	**30%**	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	7600	1	1	**3.7E-09**	**0%**	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	7600	1	1	**4.3E-07**	**1%**	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	7600	1	1	**1.1E-08**	**1%**	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	7600	1	1	**4.5E-05**	**1%**	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	7600	1	1	**2.7E-08**	**0%**	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	**7.5E-07**	**6%**	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	7600	1	1	**3.7E-10**	**5%**	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	7600	1	1	**4.9E-08**	**15%**	Y
Current	Trespasser - Adolescent wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	7600	1	1	**2.8E-07**	**38%**	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	**3.0E-09**	**0%**	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	7600	1	1	**5.6E-10**	**15%**	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	7600	1	1	**6.6E-09**	**30%**	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	7600	1	1	**3.2E-10**	**0%**	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	7600	1	1	**9.3E-09**	**1%**	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7600	1	1	**N/A**	**N/A**	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	7600	1	1	**7.5E-06**	**1%**	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	7600	1	1	**6.8E-10**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	**3.2E-07**	**6%**	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	7600	1	1	**1.6E-11**	**5%**	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	**1.9E-09**	**15%**	Y
Current	Trespasser - Adolescent wader	Wetlands	Aluminum	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.01	7600	1	1	**1.6E-09**	**38%**	Y
			Arsenic	2.0E+00	2.0E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	**2.0E-09**	**0%**	N
			Cadmium	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.025	7600	1	1	**9.2E-08**	**15%**	Y
			Chromium	1.6E+03	1.6E-03	2.0E-03	1.0E-03	2000	0.025	7600	1	1	**3.2E-06**	**30%**	Y
			Cobalt	3.2E+02	3.2E-04	4.0E-04	1.0E-03	2000	0.97	7600	1	1	**1.3E-07**	**0%**	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Trespasser - Adult wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	4500	1	1	**9.9E-08**	**23%**	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	4500	1	1	**6.6E-10**	**2%**	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	4500	1	1	**6.9E-08**	**0%**	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	4500	1	1	**2.8E-07**	**3%**	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	4500	1	1	**N/A**	**N/A**	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	4500	1	1	**3.8E-10**	**9%**	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	4500	1	1	**4.3E-09**	**18%**	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	4500	1	1	**9.2E-10**	**0%**	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	4500	1	1	**1.2E-09**	**0%**	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	4500	1	1	**2.8E-09**	**0%**	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	4500	1	1	**3.8E-05**	**0%**	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	4500	1	1	**8.3E-11**	**0%**	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	4500	1	1	**1.8E-06**	**4%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4500	1	1	**N/A**	**N/A**	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	4500	1	1	**1.9E-09**	**1%**	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	4500	1	1	**4.4E-09**	**3%**	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	4500	1	1	**3.5E-09**	**0%**	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	4500	1	1	**2.4E-09**	**9%**	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	4500	1	1	**1.8E-08**	**0%**	N
Future	Trespasser - Older Child wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	2700	1	1	**9.9E-08**	**14%**	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	2700	1	1	**6.6E-10**	**1%**	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	2700	1	1	**6.9E-08**	**0%**	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	2700	1	1	**2.8E-07**	**2%**	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	2700	1	1	**N/A**	**N/A**	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	2700	1	1	**3.8E-10**	**5%**	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	2700	1	1	**4.3E-09**	**11%**	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	2700	1	1	**9.2E-10**	**0%**	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	2700	1	1	**1.2E-09**	**0%**	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	2700	1	1	**2.8E-09**	**0%**	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	2700	1	1	**3.8E-05**	**0%**	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	2700	1	1	**8.3E-11**	**0%**	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	2700	1	1	**1.8E-06**	**2%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	2700	1	1	**N/A**	**N/A**	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	2700	1	1	**1.9E-09**	**1%**	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	2700	1	1	**4.4E-09**	**2%**	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	2700	1	1	**3.5E-09**	**0%**	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	2700	1	1	**2.4E-09**	**5%**	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	2700	1	1	**1.8E-08**	**0%**	N
Future	Rec. User - Adult wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**3.3E-06**	**37%**	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**3.2E-09**	**0%**	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**1.4E-09**	**15%**	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**2.7E-08**	**29%**	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**N/A**	**N/A**	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**7.0E-08**	**1%**	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**3.6E-09**	**1%**	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**1.0E-05**	**1%**	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**2.2E-09**	**0%**	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**5.7E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**N/A**	**N/A**	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**2.6E-09**	**14%**	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	18000	1	1	**3.3E-06**	**90%**	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**3.2E-09**	**1%**	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	18000	1	1	**1.4E-09**	**36%**	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	18000	1	1	**2.7E-08**	**72%**	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**N/A**	**N/A**	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	18000	1	1	**7.0E-08**	**2%**	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**3.6E-09**	**2%**	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**1.0E-05**	**2%**	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	18000	1	1	**2.2E-09**	**0%**	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**5.7E-07**	**15%**	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	**N/A**	**N/A**	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	**2.6E-09**	**35%**	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**3.3E-06**	**21%**	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**3.2E-09**	**0%**	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**1.4E-09**	**8%**	N
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**2.7E-08**	**17%**	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**N/A**	**N/A**	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**7.0E-08**	**0%**	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**3.6E-09**	**0%**	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**1.0E-05**	**0%**	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**2.2E-09**	**0%**	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**5.7E-07**	**3%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**N/A**	**N/A**	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**2.6E-09**	**8%**	N
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	11000	1	1	**3.3E-06**	**55%**	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**3.2E-09**	**1%**	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	11000	1	1	**1.4E-09**	**22%**	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	11000	1	1	**2.7E-08**	**44%**	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**N/A**	**N/A**	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	11000	1	1	**7.0E-08**	**1%**	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**3.6E-09**	**1%**	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**1.0E-05**	**1%**	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	11000	1	1	**2.2E-09**	**0%**	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**5.7E-07**	**9%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	**N/A**	**N/A**	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	**2.6E-09**	**21%**	Y
Future	Rec. User - Adult wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**6.5E-07**	**37%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**1.7E-09**	**0%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**6.7E-10**	**15%**	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**6.8E-09**	**29%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**4.7E-09**	**1%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**2.0E-06**	**1%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**4.7E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**1.4E-09**	**14%**	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	18000	1	1	**6.5E-07**	**90%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**1.7E-09**	**1%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	**6.7E-10**	**36%**	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	**6.8E-09**	**72%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	18000	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**4.7E-09**	**2%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**2.0E-06**	**2%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**4.7E-07**	**15%**	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	**1.4E-09**	**35%**	Y
Future	Rec. User - Older Child wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**6.5E-07**	**21%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**1.7E-09**	**0%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**6.7E-10**	**8%**	N
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**6.8E-09**	**17%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**4.7E-09**	**0%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**2.0E-06**	**0%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**4.7E-07**	**3%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**1.4E-09**	**8%**	N
Future	Rec. User - Older Child swimmer	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	11000	1	1	**6.5E-07**	**55%**	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**1.7E-09**	**1%**	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	**6.7E-10**	**22%**	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	**6.8E-09**	**44%**	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**3.3E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	11000	1	1	**N/A**	**N/A**	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**4.7E-09**	**1%**	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**2.0E-06**	**1%**	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	**6.7E-10**	**0%**	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**4.7E-07**	**9%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	**N/A**	**N/A**	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	**1.4E-09**	**21%**	Y
Future	Rec. User - Adult wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**2.1E-06**	**37%**	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**4.6E-09**	**0%**	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**4.7E-10**	**15%**	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**1.7E-08**	**29%**	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**2.6E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**N/A**	**N/A**	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**N/A**	**N/A**	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**3.7E-06**	**1%**	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**8.6E-10**	**0%**	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**3.0E-07**	**6%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**N/A**	**N/A**	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**4.2E-09**	**14%**	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	18000	1	1	**2.1E-06**	**90%**	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**4.6E-09**	**1%**	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	**4.7E-10**	**36%**	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	**1.7E-08**	**72%**	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**2.6E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	18000	1	1	**N/A**	**N/A**	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**N/A**	**N/A**	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**3.7E-06**	**2%**	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	**8.6E-10**	**0%**	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**3.0E-07**	**15%**	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	**N/A**	**N/A**	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	**4.2E-09**	**35%**	Y
Future	Rec. User - Older Child wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**2.1E-06**	**21%**	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**4.6E-09**	**0%**	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**4.7E-10**	**8%**	N
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**1.7E-08**	**17%**	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**2.6E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**N/A**	**N/A**	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**N/A**	**N/A**	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**3.7E-06**	**0%**	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**8.6E-10**	**0%**	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**3.0E-07**	**3%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**N/A**	**N/A**	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**4.2E-09**	**8%**	N
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	11000	1	1	**2.1E-06**	**55%**	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**4.6E-09**	**1%**	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	**4.7E-10**	**22%**	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	**1.7E-08**	**44%**	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**2.6E-10**	**0%**	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	11000	1	1	**N/A**	**N/A**	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**N/A**	**N/A**	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**3.7E-06**	**1%**	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	**8.6E-10**	**0%**	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**3.0E-07**	**9%**	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	**N/A**	**N/A**	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	**4.2E-09**	**21%**	Y
Future	Rec. User - Adult wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**1.7E-05**	**37%**	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**1.1E-08**	**0%**	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**1.6E-08**	**15%**	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**4.3E-07**	**29%**	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**3.7E-09**	**0%**	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**4.3E-07**	**1%**	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**1.1E-08**	**1%**	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**4.5E-05**	**1%**	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**2.7E-08**	**0%**	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**7.5E-07**	**6%**	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**3.7E-10**	**5%**	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**4.9E-08**	**14%**	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	18000	1	1	**1.7E-05**	**90%**	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**1.1E-08**	**1%**	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	18000	1	1	**1.6E-08**	**36%**	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	18000	1	1	**4.3E-07**	**72%**	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**3.7E-09**	**0%**	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	18000	1	1	**4.3E-07**	**2%**	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**1.1E-08**	**2%**	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**4.5E-05**	**2%**	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	18000	1	1	**2.7E-08**	**0%**	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**7.5E-07**	**15%**	Y
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	18000	1	1	**3.7E-10**	**13%**	Y
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	18000	1	1	**4.9E-08**	**35%**	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**1.7E-05**	**21%**	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**1.1E-08**	**0%**	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**1.6E-08**	**8%**	N
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**4.3E-07**	**17%**	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**3.7E-09**	**0%**	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**4.3E-07**	**0%**	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**1.1E-08**	**0%**	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**4.5E-05**	**0%**	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**2.7E-08**	**0%**	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**7.5E-07**	**3%**	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**3.7E-10**	**3%**	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**4.9E-08**	**8%**	N
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	11000	1	1	**1.7E-05**	**55%**	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**1.1E-08**	**1%**	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	11000	1	1	**1.6E-08**	**22%**	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	11000	1	1	**4.3E-07**	**44%**	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**3.7E-09**	**0%**	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	11000	1	1	**4.3E-07**	**1%**	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**1.1E-08**	**1%**	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**4.5E-05**	**1%**	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	11000	1	1	**2.7E-08**	**0%**	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**7.5E-07**	**9%**	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	11000	1	1	**3.7E-10**	**8%**	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	11000	1	1	**4.9E-08**	**21%**	Y
Future	Rec. User - Adult wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	**2.8E-07**	**37%**	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**3.0E-09**	**0%**	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	**5.6E-10**	**15%**	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	**6.6E-09**	**29%**	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**3.2E-10**	**0%**	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	7310	1	1	**9.3E-09**	**1%**	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**N/A**	**N/A**	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**7.5E-06**	**1%**	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	**6.8E-10**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**3.2E-07**	**6%**	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	7310	1	1	**1.6E-11**	**5%**	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	**1.9E-09**	**14%**	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	18000	1	1	**2.8E-07**	**90%**	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**3.0E-09**	**1%**	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	**5.6E-10**	**36%**	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	**6.6E-09**	**72%**	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**3.2E-10**	**0%**	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	18000	1	1	**9.3E-09**	**2%**	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**N/A**	**N/A**	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**7.5E-06**	**2%**	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	**6.8E-10**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**3.2E-07**	**15%**	Y
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	18000	1	1	**1.6E-11**	**13%**	Y
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	**1.9E-09**	**35%**	Y
Future	Rec. User - Older Child wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	**2.8E-07**	**21%**	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**3.0E-09**	**0%**	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	**5.6E-10**	**8%**	N
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	**6.6E-09**	**17%**	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**3.2E-10**	**0%**	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	4170	1	1	**9.3E-09**	**0%**	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**N/A**	**N/A**	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**7.5E-06**	**0%**	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	**6.8E-10**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**3.2E-07**	**3%**	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	4170	1	1	**1.6E-11**	**3%**	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	**1.9E-09**	**8%**	N
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	11000	1	1	**2.8E-07**	**55%**	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**3.0E-09**	**1%**	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	**5.6E-10**	**22%**	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	**6.6E-09**	**44%**	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**3.2E-10**	**0%**	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	11000	1	1	**9.3E-09**	**1%**	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**N/A**	**N/A**	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**7.5E-06**	**1%**	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	**6.8E-10**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**3.2E-07**	**9%**	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	11000	1	1	**1.6E-11**	**8%**	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	**1.9E-09**	**21%**	Y
Future	Rec. User - Adult wader	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	**1.6E-09**	**0%**	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	7310	1	1	**8.2E-10**	**0%**	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	7310	1	1	**9.2E-08**	**1%**	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	**1.6E-06**	**1%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	**3.2E-07**	**6%**	N
Future	Rec. User - Adult swimmer	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	**1.6E-09**	**1%**	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	18000	1	1	**8.2E-10**	**0%**	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	18000	1	1	**9.2E-08**	**2%**	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	**1.6E-06**	**2%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	**3.2E-07**	**15%**	Y
Future	Rec. User - Older Child wader	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	**1.6E-09**	**0%**	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	4170	1	1	**8.2E-10**	**0%**	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	4170	1	1	**9.2E-08**	**0%**	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	**1.6E-06**	**0%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	**3.2E-07**	**3%**	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm^3/day	ABSGI	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	**1.6E-09**	**1%**	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	11000	1	1	**8.2E-10**	**0%**	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	11000	1	1	**9.2E-08**	**1%**	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	**1.6E-06**	**1%**	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	**3.2E-07**	**9%**	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Concentration (mg/L*L/1000 cm3):	Conc =	0.001	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm)	= 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	SA=	18000	cm2
Event time (hr/event):	t_event =	0.58	hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1	event/day
Exposure frequency (days/year):	EF =	350	days/yr
Exposure duration (years):	ED =	30	years
Body weight (kg):	BW =	70	kg
Averaging time (days):	AT =	25550	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV
Drinking (mg/day) = Conc * IR * ABSIG

IR: Ingestion rate of drinking water	IR =	2000	(cm3/day = L/day * 1000 cm3/L)
ABSIG: Absorption fraction in GI tract	Chemical specific		
Condition for screening: "Y" when Dermal is 10% of Drinking			

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min)	Q =	1135500	(cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

Refer to Appendix A for equations to evaluate DA_event and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm3)	DA_event (mg/cm2-event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Antimony	1.0E-03	default	1.0E-03	5.8E-07	6.2E-05	15%	3.50%	N	0.00%

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
Current	Trespasser - Adolescent wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	3700	1	1	**1.5E-08**	**3%**	N
			Acenaphthylene	1.80	3700	1	1	**3.7E-09**	**40%**	Y
			Atrazine	4.07	3700	1	1	**5.9E-08**	**3%**	N
			Benzo(a)anthracene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	3700	1	1	**1.7E-07**	**41%**	Y
			Chrysene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	3700	1	1	**1.2E-07**	**51%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	3700	1	1	**2.1E-08**	**18%**	Y
			N-Nitrosodiphenylamine	3.25	3700	1	1	**1.1E-07**	**9%**	N
			Pentachlorophenol	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	3700	1	1	**1.8E-07**	**18%**	Y
			Benzene	0.69	3700	1	1	**1.5E-05**	**4%**	N
			Chlorobenzene	1.08	3700	1	1	**7.2E-07**	**10%**	N
			Ethylbenzene	0.99	3700	1	1	**9.5E-08**	**17%**	Y
			Xylene (total)	0.99	3700	1	1	**2.7E-07**	**17%**	Y
			Total PCBs	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	3700	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	3700	1	1	**2.5E-10**	**13%**	Y
			alpha-Chlordane	49.90	3700	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	3700	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	3700	1	1	**N/A**	**N/A**	N/A
Current	Trespasser - Adolescent wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**2.9E-07**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**1.8E-08**	**36%**	Y
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**9.9E-10**	**113%**	Y
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7600	1	1	**1.3E-09**	**113%**	Y
			Heptachlor Epoxide	38.21	7600	1	1	**1.2E-09**	**88%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Rec. User - Adult wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Rec. User - Older Child wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Rec. User - Adult wader	Southern Bank								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**2.5E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A
Current	Rec. User - Older Child wader	Southern Bank								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**2.5E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Upstream of Landfill																				
			Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**2.2E-06**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**1.3E-09**	**113%**	Y
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**6.7E-10**	**88%**	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**5.2E-08**	**37%**	Y
			Benzene	0.69	7600	1	1	**1.9E-08**	**9%**	N
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**1.4E-09**	**39%**	Y
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**8.5E-10**	**88%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**1.3E-08**	**36%**	Y
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**5.6E-08**	**9%**	N
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**4.1E-10**	**39%**	Y
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**N/A**	**N/A**	N/A
Current	Trespasser - Adolescent wader	Wetlands								
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**4.2E-07**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**3.5E-10**	**27%**	Y
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	4500	1	1	**1.5E-08**	**3%**	N
			Acenaphthylene	1.80	4500	1	1	**3.7E-09**	**49%**	Y
			Atrazine	4.07	4500	1	1	**5.9E-08**	**4%**	N
			Benzo(a)anthracene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4500	1	1	**1.7E-07**	**50%**	Y
			Chrysene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	4500	1	1	**1.2E-07**	**62%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4500	1	1	**2.1E-08**	**21%**	Y
			N-Nitrosodiphenylamine	3.25	4500	1	1	**1.1E-07**	**11%**	Y
			Pentachlorophenol	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4500	1	1	**1.8E-07**	**22%**	Y
			Benzene	0.69	4500	1	1	**1.5E-05**	**5%**	N
			Chlorobenzene	1.08	4500	1	1	**7.2E-07**	**12%**	Y
			Ethylbenzene	0.99	4500	1	1	**9.5E-08**	**20%**	Y
			Xylene (total)	0.99	4500	1	1	**2.7E-07**	**20%**	Y
			Total PCBs	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4500	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	4500	1	1	**2.5E-10**	**16%**	Y
			alpha-Chlordane	49.90	4500	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4500	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4500	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
Future	Rec. User - Adult wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	2700	1	1	**1.5E-08**	**2%**	N
			Acenaphthylene	1.80	2700	1	1	**3.7E-09**	**29%**	Y
			Atrazine	4.07	2700	1	1	**5.9E-08**	**3%**	N
			Benzo(a)anthracene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2700	1	1	**1.7E-07**	**30%**	Y
			Chrysene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	2700	1	1	**1.2E-07**	**37%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	2700	1	1	**2.1E-08**	**13%**	Y
			N-Nitrosodiphenylamine	3.25	2700	1	1	**1.1E-07**	**6%**	N
			Pentachlorophenol	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	2700	1	1	**1.8E-07**	**13%**	Y
			Benzene	0.69	2700	1	1	**1.5E-05**	**3%**	N
			Chlorobenzene	1.08	2700	1	1	**7.2E-07**	**7%**	N
			Ethylbenzene	0.99	2700	1	1	**9.5E-08**	**12%**	Y
			Xylene (total)	0.99	2700	1	1	**2.7E-07**	**12%**	Y
			Total PCBs	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	2700	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	2700	1	1	**2.5E-10**	**10%**	N
			alpha-Chlordane	49.90	2700	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	2700	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	2700	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**2.9E-07**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**1.8E-08**	**35%**	Y
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**9.9E-10**	**109%**	Y
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7310	1	1	**1.3E-09**	**109%**	Y
			Heptachlor Epoxide	38.21	7310	1	1	**1.2E-09**	**84%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**2.9E-07**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**1.8E-08**	**86%**	Y
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**9.9E-10**	**269%**	Y
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	18000	1	1	**1.3E-09**	**269%**	Y
			Heptachlor Epoxide	38.21	18000	1	1	**1.2E-09**	**207%**	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**2.9E-07**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**1.8E-08**	**20%**	Y
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**9.9E-10**	**62%**	Y
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4170	1	1	**1.3E-09**	**62%**	Y
			Heptachlor Epoxide	38.21	4170	1	1	**1.2E-09**	**48%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**2.9E-07**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**1.8E-08**	**53%**	Y
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**9.9E-10**	**164%**	Y
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	11000	1	1	**1.3E-09**	**164%**	Y
			Heptachlor Epoxide	38.21	11000	1	1	**1.2E-09**	**127%**	Y
Future	Rec. User - Adult wader	Southern Bank								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**2.5E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**2.5E-10**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Older Child wader	Southern Bank								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**2.5E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Upstream of Landfill																				
			Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Southern Bank								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**2.5E-10**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**2.2E-06**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**1.3E-09**	**109%**	Y
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**6.7E-10**	**84%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Upstream of Landfill																				
			Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Upstream of Landfill																				
			Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**2.2E-06**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**1.3E-09**	**269%**	Y
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**6.7E-10**	**207%**	Y
Future	Rec. User - Older Child wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**2.2E-06**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**1.3E-09**	**62%**	Y
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**6.7E-10**	**48%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Upstream of Landfill																				
			Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Upstream of Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**2.2E-06**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**1.3E-09**	**164%**	Y
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**6.7E-10**	**127%**	Y
Future	Rec. User - Adult wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**5.2E-08**	**35%**	Y
			Benzene	0.69	7310	1	1	**1.9E-08**	**8%**	N
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**1.4E-09**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**8.5E-10**	**84%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**5.2E-08**	**87%**	Y
			Benzene	0.69	18000	1	1	**1.9E-08**	**21%**	Y
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**1.4E-09**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**8.5E-10**	**207%**	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**5.2E-08**	**20%**	Y
			Benzene	0.69	4170	1	1	**1.9E-08**	**5%**	N
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**1.4E-09**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**8.5E-10**	**48%**	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**5.2E-08**	**53%**	Y
			Benzene	0.69	11000	1	1	**1.9E-08**	**13%**	Y
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**1.4E-09**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**8.5E-10**	**127%**	Y
Future	Rec. User - Adult wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**1.3E-08**	**35%**	Y
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**5.6E-08**	**8%**	N
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**4.1E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**1.3E-08**	**86%**	Y
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**5.6E-08**	**21%**	Y
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**4.1E-10**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Older Child wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**1.3E-08**	**20%**	Y
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**5.6E-08**	**5%**	N
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**4.1E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/Isc)	Dsc/Isc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult swimmer	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child swimmer	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Downstream of Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**1.3E-08**	**53%**	Y
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**5.6E-08**	**13%**	Y
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**4.1E-10**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Wetlands								
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**4.2E-07**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**3.5E-10**	**26%**	Y
Future	Rec. User - Adult swimmer	Wetlands								
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**4.2E-07**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**3.5E-10**	**64%**	Y
Future	Rec. User - Older Child wader	Wetlands								
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**4.2E-07**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**3.5E-10**	**15%**	Y
Future	Rec. User - Older Child swimmer	Wetlands								
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**4.2E-07**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**3.5E-10**	**39%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
Current	Trespasser - Adolescent wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	3700	1	1	**1.5E-08**	**3%**	N
			Acenaphthylene	1.80	3700	1	1	**3.7E-09**	**40%**	Y
			Atrazine	4.07	3700	1	1	**5.9E-08**	**3%**	N
			Benzo(a)anthracene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	3700	1	1	**1.7E-07**	**41%**	Y
			Chrysene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	3700	1	1	**1.2E-07**	**51%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	3700	1	1	**2.1E-08**	**18%**	Y
			N-Nitrosodiphenylamine	3.25	3700	1	1	**1.1E-07**	**9%**	N
			Pentachlorophenol	N/A	3700	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	3700	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	3700	1	1	**1.8E-07**	**18%**	Y
			Benzene	0.69	3700	1	1	**1.5E-05**	**4%**	N
			Chlorobenzene	1.08	3700	1	1	**7.2E-07**	**10%**	N
			Ethylbenzene	0.99	3700	1	1	**9.5E-08**	**17%**	Y
			Xylene (total)	0.99	3700	1	1	**2.7E-07**	**17%**	Y
			Total PCBs	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	3700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	3700	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	3700	1	1	**2.5E-10**	**13%**	Y
			alpha-Chlordane	49.90	3700	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	3700	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	3700	1	1	**N/A**	**N/A**	N/A
Current	Trespasser - Adolescent wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**2.9E-07**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**5.7E-09**	**36%**	Y
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**9.9E-10**	**113%**	Y
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7600	1	1	**1.3E-09**	**113%**	Y
			Heptachlor Epoxide	38.21	7600	1	1	**1.2E-09**	**88%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Rec. User - Adult wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Rec. User - Older Child wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Rec. User - Adult wader	Southern Bank								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**2.5E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A
Current	Rec. User - Older Child wader	Southern Bank								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**2.5E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Upstream of Landfill																				
			Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**1.1E-06**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**6.0E-10**	**113%**	Y
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**4.1E-10**	**88%**	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**2.7E-08**	**37%**	Y
			Benzene	0.69	7600	1	1	**1.3E-08**	**9%**	N
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**1.4E-09**	**39%**	Y
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**8.5E-10**	**88%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7600	1	1	**4.8E-09**	**36%**	Y
			Phenanthrene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7600	1	1	**5.6E-08**	**9%**	N
			Aroclor-1260	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7600	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7600	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7600	1	1	**4.1E-10**	**39%**	Y
			Gamma-Chlordane	49.90	7600	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7600	1	1	**N/A**	**N/A**	N/A
Current	Trespasser - Adolescent wader	Wetlands								
			Benzo(b)fluoranthene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	**4.2E-07**	**85%**	Y
			Chrysene	N/A	7600	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7600	1	1	**3.5E-10**	**27%**	Y
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	4500	1	1	**1.5E-08**	**3%**	N
			Acenaphthylene	1.80	4500	1	1	**3.7E-09**	**49%**	Y
			Atrazine	4.07	4500	1	1	**5.9E-08**	**4%**	N
			Benzo(a)anthracene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4500	1	1	**1.7E-07**	**50%**	Y
			Chrysene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	4500	1	1	**1.2E-07**	**62%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4500	1	1	**2.1E-08**	**21%**	Y
			N-Nitrosodiphenylamine	3.25	4500	1	1	**1.1E-07**	**11%**	Y
			Pentachlorophenol	N/A	4500	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4500	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4500	1	1	**1.8E-07**	**22%**	Y
			Benzene	0.69	4500	1	1	**1.5E-05**	**5%**	N
			Chlorobenzene	1.08	4500	1	1	**7.2E-07**	**12%**	Y
			Ethylbenzene	0.99	4500	1	1	**9.5E-08**	**20%**	Y
			Xylene (total)	0.99	4500	1	1	**2.7E-07**	**20%**	Y
			Total PCBs	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4500	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4500	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	4500	1	1	**2.5E-10**	**16%**	Y
			alpha-Chlordane	49.90	4500	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4500	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4500	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island																				
			4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	**0.42**	1.0	-3.41E+00	3.93E-04	**3.93E-07**	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	**0.75**	1.0	-3.65E+00	2.23E-04	**2.23E-07**	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	**1.70**	1.0	-4.01E+00	9.82E-05	**9.82E-08**	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	**3.81**	0.6	-4.36E+00	4.37E-05	**4.37E-08**	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	**1.85**	1.0	-4.04E+00	9.02E-05	**9.02E-08**	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	**1.35**	1.0	-3.91E+00	1.23E-04	**1.23E-07**	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	**3.26**	0.9	-4.29E+00	5.11E-05	**5.11E-08**	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	**0.45**	1.0	-3.43E+00	3.71E-04	**3.71E-07**	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	**0.41**	1.0	-3.39E+00	4.03E-04	**4.03E-07**	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
Future	Rec. User - Adult wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island								
			4-Methylphenol	1.02	2700	1	1	**1.5E-08**	**2%**	N
			Acenaphthylene	1.80	2700	1	1	**3.7E-09**	**29%**	Y
			Atrazine	4.07	2700	1	1	**5.9E-08**	**3%**	N
			Benzo(a)anthracene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2700	1	1	**1.7E-07**	**30%**	Y
			Chrysene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Dibenz(a,h)anthracene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Dibenzofuran	4.44	2700	1	1	**1.2E-07**	**37%**	Y
			Indeno(1,2,3-cd)pyrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	2700	1	1	**2.1E-08**	**13%**	Y
			N-Nitrosodiphenylamine	3.25	2700	1	1	**1.1E-07**	**6%**	N
			Pentachlorophenol	N/A	2700	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	2700	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	2700	1	1	**1.8E-07**	**13%**	Y
			Benzene	0.69	2700	1	1	**1.5E-05**	**3%**	N
			Chlorobenzene	1.08	2700	1	1	**7.2E-07**	**7%**	N
			Ethylbenzene	0.99	2700	1	1	**9.5E-08**	**12%**	Y
			Xylene (total)	0.99	2700	1	1	**2.7E-07**	**12%**	Y
			Total PCBs	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	2700	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	2700	1	1	**N/A**	**N/A**	N/A
			alpha-BHC	10.73	2700	1	1	**2.5E-10**	**10%**	N
			alpha-Chlordane	49.90	2700	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	2700	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	2700	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**2.9E-07**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**5.7E-09**	**35%**	Y
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**9.9E-10**	**109%**	Y
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7310	1	1	**1.3E-09**	**109%**	Y
			Heptachlor Epoxide	38.21	7310	1	1	**1.2E-09**	**84%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**2.9E-07**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**5.7E-09**	**86%**	Y
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**9.9E-10**	**269%**	Y
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	18000	1	1	**1.3E-09**	**269%**	Y
			Heptachlor Epoxide	38.21	18000	1	1	**1.2E-09**	**207%**	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**2.9E-07**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**5.7E-09**	**20%**	Y
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**9.9E-10**	**62%**	Y
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4170	1	1	**1.3E-09**	**62%**	Y
			Heptachlor Epoxide	38.21	4170	1	1	**1.2E-09**	**48%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds																				
			Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**2.9E-07**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**5.7E-09**	**53%**	Y
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**9.9E-10**	**164%**	Y
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	11000	1	1	**1.3E-09**	**164%**	Y
			Heptachlor Epoxide	38.21	11000	1	1	**1.2E-09**	**127%**	Y
Future	Rec. User - Adult wader	Southern Bank								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**2.5E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**2.5E-10**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Older Child wader	Southern Bank								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**2.5E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Southern Bank																				
			Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Upstream of Landfill																				
			Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Southern Bank								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**2.5E-10**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**1.1E-06**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**6.0E-10**	**109%**	Y
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**4.1E-10**	**84%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Upstream of Landfill																				
			Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Upstream of Landfill																				
			Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**1.1E-06**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**6.0E-10**	**269%**	Y
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**4.1E-10**	**207%**	Y
Future	Rec. User - Older Child wader	Upstream of Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**1.1E-06**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**6.0E-10**	**62%**	Y
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**4.1E-10**	**48%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Upstream of Landfill																				
			Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Upstream of Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**1.1E-06**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**N/A**	**N/A**	N/A
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**6.0E-10**	**164%**	Y
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**N/A**	**N/A**	N/A
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**4.1E-10**	**127%**	Y
Future	Rec. User - Adult wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**2.7E-08**	**35%**	Y
			Benzene	0.69	7310	1	1	**1.3E-08**	**8%**	N
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**1.4E-09**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**8.5E-10**	**84%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**2.7E-08**	**87%**	Y
			Benzene	0.69	18000	1	1	**1.3E-08**	**21%**	Y
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**1.4E-09**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**8.5E-10**	**207%**	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**2.7E-08**	**20%**	Y
			Benzene	0.69	4170	1	1	**1.3E-08**	**5%**	N
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**1.4E-09**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**8.5E-10**	**48%**	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Adjacent to Landfill																				
			Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Adjacent to Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**N/A**	**N/A**	N/A
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**2.7E-08**	**53%**	Y
			Benzene	0.69	11000	1	1	**1.3E-08**	**13%**	Y
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**1.4E-09**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**8.5E-10**	**127%**	Y
Future	Rec. User - Adult wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	7310	1	1	**4.8E-09**	**35%**	Y
			Phenanthrene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	7310	1	1	**5.6E-08**	**8%**	N
			Aroclor-1260	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	7310	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	7310	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	7310	1	1	**4.1E-10**	**37%**	Y
			Gamma-Chlordane	49.90	7310	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	7310	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill								
			Benzo(a)anthracene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	18000	1	1	**4.8E-09**	**86%**	Y
			Phenanthrene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	18000	1	1	**5.6E-08**	**21%**	Y
			Aroclor-1260	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	18000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	18000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	18000	1	1	**4.1E-10**	**92%**	Y
			Gamma-Chlordane	49.90	18000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	18000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Older Child wader	Downstream of Landfill								
			Benzo(a)anthracene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	4170	1	1	**4.8E-09**	**20%**	Y
			Phenanthrene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	4170	1	1	**5.6E-08**	**5%**	N
			Aroclor-1260	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	4170	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	4170	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	4170	1	1	**4.1E-10**	**21%**	Y
			Gamma-Chlordane	49.90	4170	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	4170	1	1	**N/A**	**N/A**	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm^3/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Downstream of Landfill																				
			Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	**2.64**	1.0	-4.20E+00	6.31E-05	**6.31E-08**	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	**3.71**	1.0	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	**3.71**	0.6	-4.35E+00	4.49E-05	**4.49E-08**	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	**0.55**	1.0	-3.52E+00	3.03E-04	**3.03E-07**	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	**1.05**	1.0	-3.80E+00	1.59E-04	**1.59E-07**	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	**0.70**	1.0	-3.62E+00	2.38E-04	**2.38E-07**	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	**0.29**	1.0	-3.24E+00	5.79E-04	**5.79E-07**	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	**4.54**	1.0	-4.44E+00	3.67E-05	**3.67E-08**	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	**6.51**	0.8	-4.59E+00	2.56E-05	**2.56E-08**	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	**6.35**	0.8	-4.58E+00	2.63E-05	**2.63E-08**	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	**10.23**	0.7	-4.79E+00	1.63E-05	**1.63E-08**	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	**14.30**	0.8	-4.93E+00	1.17E-05	**1.17E-08**	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	**20.79**	0.7	-5.10E+00	8.02E-06	**8.02E-09**	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	**15.92**	1.0	-4.98E+00	1.05E-05	**1.05E-08**	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult swimmer	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child wader	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child swimmer	Wetlands																				
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	**2.72**	1.0	-4.21E+00	6.13E-05	**6.13E-08**	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	**16.27**	0.8	-4.99E+00	1.02E-05	**1.02E-08**	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	**2.00**	1.0	-4.08E+00	8.35E-05	**8.35E-08**	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	**4.47**	1.0	-4.43E+00	3.73E-05	**3.73E-08**	3.5E-01	3.9E-01	N/A	10.73

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm^2	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Downstream of Landfill								
			Benzo(a)anthracene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(a)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**N/A**	**N/A**	N/A
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			Naphthalene	1.32	11000	1	1	**4.8E-09**	**53%**	Y
			Phenanthrene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	**N/A**	**N/A**	N/A
			Benzene	0.69	11000	1	1	**5.6E-08**	**13%**	Y
			Aroclor-1260	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDD	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDE	N/A	11000	1	1	**N/A**	**N/A**	N/A
			4,4'-DDT	N/A	11000	1	1	**N/A**	**N/A**	N/A
			alpha-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**N/A**	**N/A**	N/A
			Dieldrin	34.33	11000	1	1	**4.1E-10**	**56%**	Y
			Gamma-Chlordane	49.90	11000	1	1	**N/A**	**N/A**	N/A
			Heptachlor Epoxide	38.21	11000	1	1	**N/A**	**N/A**	N/A
Future	Rec. User - Adult wader	Wetlands								
			Benzo(b)fluoranthene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	**4.2E-07**	**81%**	Y
			Chrysene	N/A	7310	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	7310	1	1	**3.5E-10**	**26%**	Y
Future	Rec. User - Adult swimmer	Wetlands								
			Benzo(b)fluoranthene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	**4.2E-07**	**200%**	Y
			Chrysene	N/A	18000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	18000	1	1	**3.5E-10**	**64%**	Y
Future	Rec. User - Older Child wader	Wetlands								
			Benzo(b)fluoranthene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	**4.2E-07**	**46%**	Y
			Chrysene	N/A	4170	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	4170	1	1	**3.5E-10**	**15%**	Y
Future	Rec. User - Older Child swimmer	Wetlands								
			Benzo(b)fluoranthene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	**4.2E-07**	**122%**	Y
			Chrysene	N/A	11000	1	1	**N/A**	**N/A**	N/A
			beta-BHC	10.73	11000	1	1	**3.5E-10**	**39%**	Y

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR ORGANIC CHEMICALS IN WATER (updated on 11/99)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (updated 11/99)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells G5-G18

Concentration (mg/L*L/1000 cm3):	Conc =	1.0E-03	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm)	= 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	A =	5672.0	cm2
Event time (hr/event):	t_event =	0.5	hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1.0	event/day
Exposure frequency (days/year):	EF =	26.0	days/yr
Exposure duration (years):	ED =	7.0	years
Body weight (kg):	BW =	70.0	kg
Averaging time (days):	AT =	2555.0	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			
Skin thickness (assumed to be 10 um):	lsc =	1.0E-03	cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000.0	(cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0	(assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data

95% LCI and UCI are evaluated by Dr. Paul Pinsky in NCEA using SAS

	CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Chemicals outside EPD (*)	Derm/ Drink Kp	Chem Assess	B	tau (hr)	t_star (hr)
118	Heptachlor	76448	373.5	4.27	3.4E-04	8.6E-03		2.2E-01		**14%**	Y	0.1	**12.99**	31.16

FA for tau>3	Conc (mg/cm3)	DA_event (mg/cm2-evt)	DAD (mg/kg-day)	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
0.8	1.4E-09	**6.8E-11**	**3.9E-10**	-4.89E+00	1.28E-05	**1.28E-08**	3.4E-01	3.8E-01	#NUM!	31.16

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 7. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SOIL/SEDIMENT

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
All	All	All	1,4-Dioxane	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			2,4-Dimethylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Chloro-3-methylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Chloroaniline	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Methylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Nitrophenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Acenaphthylene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Atrazine	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(a)anthracene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(a)pyrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(b)fluoranthene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(g,h,i)perylene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(k)fluoranthene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Bis(2-ethylhexyl)phthalate	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Carbazole	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Chrysene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dibenz(a,h)anthracene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dibenzofuran	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Hexachlorobenzene	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Indeno(1,2,3-cd)pyrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Isophorone	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Naphthalene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			N-Nitrosodiphenylamine	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Pentachlorophenol	Sediment/Soil	0.25	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Phenanthrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1242	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1248	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1254	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1260	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Total PCBs	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Total PCB Homologs	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDD	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDE	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDT	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aldrin	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			alpha-BHC	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			alpha-Chlordane	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			beta-BHC	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dieldrin	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan I	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan II	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan Sulfate	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			gamma-BHC (Lindane)	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			gamma-Chlordane	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Heptachlor	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Heptachlor epoxide	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dioxin TEQ	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Arsenic	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Cadmium	Sediment/Soil	0.001	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3			From File	H:\JCV\Puritan\2007\EPCs\Sediment\adj_land_sediment.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**bis(2-Ethylhexyl)phthalate**											
10												
11						**General Statistics**						
12						Number of Valid Samples	15			Number of Detected Data		11
13						Number of Unique Samples	11			Number of Non-Detect Data		4
14										Percent Non-Detects		26.67%
15												
16				**Raw Statistics**						**Log-transformed Statistics**		
17						Minimum Detected	120			Minimum Detected		4.787
18						Maximum Detected	58000			Maximum Detected		10.97
19						Mean of Detected	7324			Mean of Detected		7.325
20						SD of Detected	16964			SD of Detected		1.863
21						Minimum Non-Detect	360			Minimum Non-Detect		5.886
22						Maximum Non-Detect	570			Maximum Non-Detect		6.346
23												
24				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		7
25				For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected		8
26				those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		46.67%
27												
28						**UCL Statistics**						
29				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	0.458			Shapiro Wilk Test Statistic		0.939
31						5% Shapiro Wilk Critical Value	0.85			5% Shapiro Wilk Critical Value		0.85
32				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
33												
34				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	5431			Mean		6.813
37						SD	14701			SD		1.806
38						95% DL/2 (t) UCL	12117			95% H-Stat (DL/2) UCL		29490
39												
40						Maximum Likelihood Estimate(MLE) Method				Robust ROS Method		
41						Mean	-2976			Mean in Log Scale		6.728
42						SD	21351			SD in Log Scale		1.879
43						95% MLE (t) UCL	6734			Mean in Original Scale		5414
44						95% MLE (Tiku) UCL	8746			SD in Original Scale		14708
45										95% Percentile Bootstrap UCL		12703
46										95% BCA Bootstrap UCL		16902
47												
48				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
49						k star (bias corrected)	0.363			**Data appear Gamma Distributed at 5% Significance Level**		
50						Theta Star	20186					
51						nu star	7.982					
52												
53						A-D Test Statistic	0.792			**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	0.798					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	0.798					Mean	5412
56					5% K-S Critical Value	0.272					SD	14210
57				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	3848
58											95% KM (t) UCL	12189
59				**Assuming Gamma Distribution**							95% KM (z) UCL	11741
60				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	12101
61					Minimum	0					95% KM (bootstrap t) UCL	43522
62					Maximum	58000					95% KM (BCA) UCL	13420
63					Mean	5340					95% KM (percentile) UCL	12871
64					Median	1100					95% KM (Chebyshev) UCL	22185
65					SD	14736					97.5% KM (Chebyshev) UCL	29442
66					k star	0.0939					99% KM (Chebyshev) UCL	43699
67					Theta star	56892						
68					Nu star	2.816					**Potential UCLs to Use**	
69					AppChi2	0.32					95% KM (Chebyshev) UCL	22185
70					95% Gamma Approximate UCL	46986						
71					95% Adjusted Gamma UCL	61503						
72												
73												
74	**Benzo(a)pyrene**											
75												
76					**General Statistics**							
77					Number of Valid Samples	15					Number of Unique Samples	12
78												
79				**Raw Statistics**						**Log-transformed Statistics**		
80					Minimum	22					Minimum of Log Data	3.091
81					Maximum	1900					Maximum of Log Data	7.55
82					Mean	950.5					Mean of log Data	6.349
83					Median	880					SD of log Data	1.305
84					SD	705.1						
85					Coefficient of Variation	0.742						
86					Skewness	0.0355						
87												
88					**Relevant UCL Statistics**							
89				**Normal Distribution Test**						**Lognormal Distribution Test**		
90					Shapiro Wilk Test Statistic	0.875					Shapiro Wilk Test Statistic	0.844
91					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
92				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
93												
94				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
95					95% Student's-t UCL	1271					95% H-UCL	4173
96				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	3242
97					95% Adjusted-CLT UCL	1252					97.5% Chebyshev (MVUE) UCL	4116
98					95% Modified-t UCL	1271					99% Chebyshev (MVUE) UCL	5833
99												
100				**Gamma Distribution Test**						**Nonparametric Test**		
101					k star (bias corrected)	0.942				**Data appear Gamma Distributed at 5% Significance Level**		
102					Theta Star	1009						
103					nu star	28.27						
104					Approximate Chi Square Value (.05)	17.14				**Nonparametric Statistics**		
105					Adjusted Level of Significance	0.0324					95% CLT UCL	1250
106					Adjusted Chi Square Value	16.08					95% Jackknife UCL	1271

	A	B	C	D	E	F	G	H	I	J	K	L
107											95% Standard Bootstrap UCL	1240
108					Anderson-Darling Test Statistic	0.716					95% Bootstrap-t UCL	1272
109					Anderson-Darling 5% Critical Value	0.761					95% Hall's Bootstrap UCL	1226
110					Kolmogorov-Smirnov Test Statistic	0.173					95% Percentile Bootstrap UCL	1247
111					Kolmogorov-Smirnov 5% Critical Value	0.227					95% BCA Bootstrap UCL	1245
112					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1744
113											97.5% Chebyshev(Mean, Sd) UCL	2087
114					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2762
115					95% Approximate Gamma UCL	1568						
116					95% Adjusted Gamma UCL	1671						
117												
118					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	1568
119												
120												
121	**Benzo(b)fluoranthene**											
122												
123					**General Statistics**							
124					Number of Valid Samples	15					Number of Unique Samples	15
125												
126					**Raw Statistics**						**Log-transformed Statistics**	
127					Minimum	27					Minimum of Log Data	3.296
128					Maximum	2400					Maximum of Log Data	7.783
129					Mean	1096					Mean of log Data	6.459
130					Median	1200					SD of log Data	1.331
131					SD	849.7						
132					Coefficient of Variation	0.775						
133					Skewness	0.155						
134												
135					**Relevant UCL Statistics**							
136					**Normal Distribution Test**						**Lognormal Distribution Test**	
137					Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.874
138					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
139					**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
140												
141					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
142					95% Student's-t UCL	1483					95% H-UCL	5017
143					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	3779
144					95% Adjusted-CLT UCL	1466					97.5% Chebyshev (MVUE) UCL	4807
145					95% Modified-t UCL	1484					99% Chebyshev (MVUE) UCL	6825
146												
147					**Gamma Distribution Test**						**Nonparametric Test**	
148					k star (bias corrected)	0.893					**Data appear Normal at 5% Significance Level**	
149					Theta Star	1227						
150					nu star	26.79						
151					Approximate Chi Square Value (.05)	15.99					**Nonparametric Statistics**	
152					Adjusted Level of Significance	0.0324					95% CLT UCL	1457
153					Adjusted Chi Square Value	14.97					95% Jackknife UCL	1483
154											95% Standard Bootstrap UCL	1450
155					Anderson-Darling Test Statistic	0.571					95% Bootstrap-t UCL	1497
156					Anderson-Darling 5% Critical Value	0.762					95% Hall's Bootstrap UCL	1447
157					Kolmogorov-Smirnov Test Statistic	0.196					95% Percentile Bootstrap UCL	1432
158					Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	1436
159					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	2052

	A	B	C	D	E	F	G	H	I	J	K	L
160											97.5% Chebyshev(Mean, Sd) UCL	2466
161				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	3279
162					95% Approximate Gamma UCL	1837						
163					95% Adjusted Gamma UCL	1962						
164												
165				**Potential UCL to Use**							Use 95% Student's-t UCL	1483
166												
167												
168	**Benzo[a]anthracene**											
169												
170						**General Statistics**						
171					Number of Valid Samples	15					Number of Unique Samples	14
172												
173				**Raw Statistics**						**Log-transformed Statistics**		
174					Minimum	21					Minimum of Log Data	3.045
175					Maximum	2100					Maximum of Log Data	7.65
176					Mean	965.9					Mean of log Data	6.362
177					Median	820					SD of log Data	1.32
178					SD	727.1						
179					Coefficient of Variation	0.753						
180					Skewness	0.236						
181												
182						**Relevant UCL Statistics**						
183				**Normal Distribution Test**						**Lognormal Distribution Test**		
184					Shapiro Wilk Test Statistic	0.913					Shapiro Wilk Test Statistic	0.858
185					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
186				**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
187												
188				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
189					95% Student's-t UCL	1297					95% H-UCL	4418
190				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	3370
191					95% Adjusted-CLT UCL	1287					97.5% Chebyshev (MVUE) UCL	4283
192					95% Modified-t UCL	1298					99% Chebyshev (MVUE) UCL	6077
193												
194				**Gamma Distribution Test**						**Nonparametric Test**		
195					k star (bias corrected)	0.937				**Data appear Normal at 5% Significance Level**		
196					Theta Star	1031						
197					nu star	28.1						
198					Approximate Chi Square Value (.05)	17				**Nonparametric Statistics**		
199					Adjusted Level of Significance	0.0324					95% CLT UCL	1275
200					Adjusted Chi Square Value	15.95					95% Jackknife UCL	1297
201											95% Standard Bootstrap UCL	1266
202					Anderson-Darling Test Statistic	0.496					95% Bootstrap-t UCL	1311
203					Anderson-Darling 5% Critical Value	0.761					95% Hall's Bootstrap UCL	1273
204					Kolmogorov-Smirnov Test Statistic	0.147					95% Percentile Bootstrap UCL	1251
205					Kolmogorov-Smirnov 5% Critical Value	0.227					95% BCA Bootstrap UCL	1264
206				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1784
207											97.5% Chebyshev(Mean, Sd) UCL	2138
208				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2834
209					95% Approximate Gamma UCL	1596						
210					95% Adjusted Gamma UCL	1702						
211												
212				**Potential UCL to Use**							Use 95% Student's-t UCL	1297

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214												
215	Dibenz[a,h]anthracene											
216												
217						General Statistics						
218					Number of Valid Samples	15				Number of Detected Data		13
219					Number of Unique Samples	13				Number of Non-Detect Data		2
220										Percent Non-Detects		13.33%
221												
222				Raw Statistics						Log-transformed Statistics		
223					Minimum Detected	5.8				Minimum Detected		1.758
224					Maximum Detected	340				Maximum Detected		5.829
225					Mean of Detected	143				Mean of Detected		4.448
226					SD of Detected	115				SD of Detected		1.252
227					Minimum Non-Detect	630				Minimum Non-Detect		6.446
228					Maximum Non-Detect	1100				Maximum Non-Detect		7.003
229												
230	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
231	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		0
232	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
233												
234						UCL Statistics						
235				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
236					Shapiro Wilk Test Statistic	0.894				Shapiro Wilk Test Statistic		0.887
237					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
238				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
239												
240				Assuming Normal Distribution						Assuming Lognormal Distribution		
241					DL/2 Substitution Method					DL/2 Substitution Method		
242					Mean	181.6				Mean		4.659
243					SD	153.9				SD		1.291
244					95% DL/2 (t) UCL	251.6				95% H-Stat (DL/2) UCL		1879
245												
246					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
247										Mean in Log Scale		4.448
248										SD in Log Scale		1.159
249										Mean in Original Scale		135.3
250										SD in Original Scale		108.4
251										95% Percentile Bootstrap UCL		181.9
252										95% BCA Bootstrap UCL		185.8
253												
254				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
255					k star (bias corrected)	0.904				Data appear Normal at 5% Significance Level		
256					Theta Star	158.2						
257					nu star	23.49						
258												
259					A-D Test Statistic	0.596				Nonparametric Statistics		
260					5% A-D Critical Value	0.756				Kaplan-Meier (KM) Method		
261					K-S Test Statistic	0.756				Mean		143
262					5% K-S Critical Value	0.243				SD		110.5
263				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		31.9
264										95% KM (t) UCL		199.2
265				Assuming Gamma Distribution						95% KM (z) UCL		195.5

	A	B	C	D	E	F	G	H	I	J	K	L
266				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		199.5
267					Minimum	N/A				95% KM (bootstrap t) UCL		203.1
268					Maximum	N/A				95% KM (BCA) UCL		195.2
269					Mean	N/A				95% KM (percentile) UCL		192.7
270					Median	N/A				95% KM (Chebyshev) UCL		282
271					SD	N/A				97.5% KM (Chebyshev) UCL		342.2
272					k star	N/A				99% KM (Chebyshev) UCL		460.4
273					Theta star	N/A						
274					Nu star	N/A			**Potential UCLs to Use**			
275					AppChi2	N/A				95% KM (t) UCL		199.2
276				95% Gamma Approximate UCL		N/A				95% KM (Percentile Bootstrap) UCL		192.7
277				95% Adjusted Gamma UCL		N/A						
278												
279												
280	**Indeno(1,2,3-cd)pyrene**											
281												
282					**General Statistics**							
283				Number of Valid Samples		15				Number of Unique Samples		13
284												
285				**Raw Statistics**						**Log-transformed Statistics**		
286					Minimum	18				Minimum of Log Data		2.89
287					Maximum	1000				Maximum of Log Data		6.908
288					Mean	481.5				Mean of log Data		5.696
289					Median	530				SD of log Data		1.231
290					SD	353.5						
291					Coefficient of Variation	0.734						
292					Skewness	0.00299						
293												
294					**Relevant UCL Statistics**							
295				**Normal Distribution Test**						**Lognormal Distribution Test**		
296					Shapiro Wilk Test Statistic	0.888				Shapiro Wilk Test Statistic		0.851
297					Shapiro Wilk Critical Value	0.881				Shapiro Wilk Critical Value		0.881
298				**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
299												
300				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
301					95% Student's-t UCL	642.2				95% H-UCL		1777
302				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		1496
303					95% Adjusted-CLT UCL	631.7				97.5% Chebyshev (MVUE) UCL		1890
304					95% Modified-t UCL	642.2				99% Chebyshev (MVUE) UCL		2662
305												
306				**Gamma Distribution Test**						**Nonparametric Test**		
307					k star (bias corrected)	0.988				**Data appear Normal at 5% Significance Level**		
308					Theta Star	487.5						
309					nu star	29.63						
310				Approximate Chi Square Value (.05)		18.2				**Nonparametric Statistics**		
311				Adjusted Level of Significance		0.0324				95% CLT UCL		631.6
312				Adjusted Chi Square Value		17.1				95% Jackknife UCL		642.2
313										95% Standard Bootstrap UCL		628.5
314				Anderson-Darling Test Statistic		0.853				95% Bootstrap-t UCL		639
315				Anderson-Darling 5% Critical Value		0.76				95% Hall's Bootstrap UCL		621
316				Kolmogorov-Smirnov Test Statistic		0.245				95% Percentile Bootstrap UCL		625.3
317				Kolmogorov-Smirnov 5% Critical Value		0.227				95% BCA Bootstrap UCL		628
318				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		879.3

	A	B	C	D	E	F	G	H	I	J	K	L
319										97.5% Chebyshev(Mean, Sd) UCL		1051
320			**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL		1390
321				95% Approximate Gamma UCL		783.7						
322				95% Adjusted Gamma UCL		834						
323												
324			**Potential UCL to Use**							Use 95% Student's-t UCL		642.2
325												
326												
327	**Aroclor-1242**											
328												
329					**General Statistics**							
330					Number of Valid Samples	15				Number of Detected Data		2
331					Number of Unique Samples	2				Number of Non-Detect Data		13
332										Percent Non-Detects		86.67%
333												
334			**Raw Statistics**							**Log-transformed Statistics**		
335					Minimum Detected	9.6				Minimum Detected		2.262
336					Maximum Detected	250				Maximum Detected		5.521
337					Mean of Detected	129.8				Mean of Detected		3.892
338					SD of Detected	170				SD of Detected		2.305
339					Minimum Non-Detect	6.5				Minimum Non-Detect		1.872
340					Maximum Non-Detect	13				Maximum Non-Detect		2.565
341												
342	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		14
343	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
344	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.33%
345												
346					**UCL Statistics**							
347			**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**		
348					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic		1
349					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
350			**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**		
351												
352			**Assuming Normal Distribution**							**Assuming Lognormal Distribution**		
353					DL/2 Substitution Method					DL/2 Substitution Method		
354					Mean	21.21				Mean		1.802
355					SD	63.32				SD		1.068
356					95% DL/2 (t) UCL	50				95% H-Stat (DL/2) UCL		16.72
357												
358					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
359										Mean in Log Scale		-3.386
360										SD in Log Scale		3.276
361										Mean in Original Scale		17.33
362										SD in Original Scale		64.41
363										95% Percentile Bootstrap UCL		50.03
364										95% BCA Bootstrap UCL		83.34
365												
366			**Gamma Distribution Test with Detected Values Only**							**Nonparametic Test with Detected Values Only**		
367					k star (bias corrected)	N/A				**Data do not follow a Discernable Distribution (0.05)**		
368					Theta Star	N/A						
369					nu star	N/A						
370												
371					A-D Test Statistic	0.355				**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
372					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
373					K-S Test Statistic	N/A					Mean	25.63
374					5% K-S Critical Value	N/A					SD	59.97
375				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	21.9
376											95% KM (t) UCL	64.19
377				**Assuming Gamma Distribution**							95% KM (z) UCL	61.64
378					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	187.3
379					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
380					Maximum	N/A					95% KM (BCA) UCL	1E+31
381					Mean	N/A					95% KM (percentile) UCL	1E+31
382					Median	N/A					95% KM (Chebyshev) UCL	121.1
383					SD	N/A					97.5% KM (Chebyshev) UCL	162.4
384					k star	N/A					99% KM (Chebyshev) UCL	243.5
385					Theta star	N/A						
386					Nu star	N/A					**Potential UCLs to Use**	
387					AppChi2	N/A					99% KM (Chebyshev) UCL	243.5
388					95% Gamma Approximate UCL	N/A						
389					95% Adjusted Gamma UCL	N/A						
390												
391												
392	**Aroclor-1248**											
393												
394					**General Statistics**							
395					Number of Valid Samples	14					Number of Detected Data	2
396					Number of Unique Samples	2					Number of Non-Detect Data	12
397					Number of Missing Values	1					Percent Non-Detects	85.71%
398												
399				**Raw Statistics**						**Log-transformed Statistics**		
400					Minimum Detected	9.6					Minimum Detected	2.262
401					Maximum Detected	130					Maximum Detected	4.868
402					Mean of Detected	69.8					Mean of Detected	3.565
403					SD of Detected	85.14					SD of Detected	1.843
404					Minimum Non-Detect	7.3					Minimum Non-Detect	1.988
405					Maximum Non-Detect	13					Maximum Non-Detect	2.565
406												
407	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
408	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
409	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.86%
410												
411					**UCL Statistics**							
412				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
413					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
414					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
415				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
416												
417				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
418					DL/2 Substitution Method						DL/2 Substitution Method	
419					Mean	13.9					Mean	1.795
420					SD	33.46					SD	0.929
421					95% DL/2 (t) UCL	29.73					95% H-Stat (DL/2) UCL	14.03
422												
423					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
424											Mean in Log Scale	-1.898

	A	B	C	D	E	F	G	H	I	J	K	L
425											SD in Log Scale	2.579
426											Mean in Original Scale	10.06
427											SD in Original Scale	34.61
428											95% Percentile Bootstrap UCL	27.99
429											95% BCA Bootstrap UCL	37.91
430												
431				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
432					k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**			
433					Theta Star	N/A						
434					nu star	N/A						
435												
436					A-D Test Statistic	0.356			**Nonparametric Statistics**			
437					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
438					K-S Test Statistic	N/A					Mean	18.2
439					5% K-S Critical Value	N/A					SD	31.01
440				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	11.72
441											95% KM (t) UCL	38.96
442				**Assuming Gamma Distribution**							95% KM (z) UCL	37.48
443					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	99.56
444					Minimum	N/A					95% KM (bootstrap t) UCL	18.2
445					Maximum	N/A					95% KM (BCA) UCL	1E+31
446					Mean	N/A					95% KM (percentile) UCL	1E+31
447					Median	N/A					95% KM (Chebyshev) UCL	69.29
448					SD	N/A					97.5% KM (Chebyshev) UCL	91.39
449					k star	N/A					99% KM (Chebyshev) UCL	134.8
450					Theta star	N/A						
451					Nu star	N/A			**Potential UCLs to Use**			
452					AppChi2	N/A					97.5% KM (Chebyshev) UCL	91.39
453					95% Gamma Approximate UCL	N/A						
454					95% Adjusted Gamma UCL	N/A						
455												
456												
457	**Aroclor-1254**											
458												
459						**General Statistics**						
460					Number of Valid Samples	15					Number of Detected Data	6
461					Number of Unique Samples	6					Number of Non-Detect Data	9
462											Percent Non-Detects	60.00%
463												
464				**Raw Statistics**					**Log-transformed Statistics**			
465					Minimum Detected	9.6					Minimum Detected	2.262
466					Maximum Detected	550					Maximum Detected	6.31
467					Mean of Detected	139					Mean of Detected	3.659
468					SD of Detected	219.2					SD of Detected	1.759
469					Minimum Non-Detect	6.5					Minimum Non-Detect	1.872
470					Maximum Non-Detect	13					Maximum Non-Detect	2.565
471												
472	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
473	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
474	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	73.33%
475												
476						**UCL Statistics**						
477				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			

	A	B	C	D	E	F	G	H	I	J	K	L
478					Shapiro Wilk Test Statistic	0.699					Shapiro Wilk Test Statistic	0.799
479					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
480					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
481												
482					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
483					DL/2 Substitution Method						DL/2 Substitution Method	
484					Mean	58.21					Mean	2.336
485					SD	147.7					SD	1.543
486					95% DL/2 (t) UCL	125.4					95% H-Stat (DL/2) UCL	61.05
487												
488					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
489					Mean	-222.7					Mean in Log Scale	0.853
490					SD	358.9					SD in Log Scale	2.608
491					95% MLE (t) UCL	-59.54					Mean in Original Scale	55.81
492					95% MLE (Tiku) UCL	92.14					SD in Original Scale	148.7
493											95% Percentile Bootstrap UCL	123.3
494											95% BCA Bootstrap UCL	165.1
495												
496					**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**	
497					k star (bias corrected)	0.36					**Data appear Lognormal at 5% Significance Level**	
498					Theta Star	385.7						
499					nu star	4.323						
500												
501					A-D Test Statistic	0.761					**Nonparametric Statistics**	
502					5% A-D Critical Value	0.736					Kaplan-Meier (KM) Method	
503					K-S Test Statistic	0.736					Mean	61.34
504					5% K-S Critical Value	0.349					SD	141.6
505					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	40.04
506											95% KM (t) UCL	131.9
507					**Assuming Gamma Distribution**						95% KM (z) UCL	127.2
508					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	127.8
509					Minimum	0					95% KM (bootstrap t) UCL	2492
510					Maximum	550					95% KM (BCA) UCL	132.7
511					Mean	54.28					95% KM (percentile) UCL	133.1
512					Median	0					95% KM (Chebyshev) UCL	235.9
513					SD	149.2					97.5% KM (Chebyshev) UCL	311.4
514					k star	0.0834					99% KM (Chebyshev) UCL	459.7
515					Theta star	651.1						
516					Nu star	2.501					**Potential UCLs to Use**	
517					AppChi2	0.241					97.5% KM (Chebyshev) UCL	311.4
518					95% Gamma Approximate UCL	562.5						
519					95% Adjusted Gamma UCL	732.1						
520												
521												
522	**Aroclor-1260**											
523												
524					**General Statistics**							
525					Number of Valid Samples	15					Number of Detected Data	9
526					Number of Unique Samples	8					Number of Non-Detect Data	6
527											Percent Non-Detects	40.00%
528												
529					**Raw Statistics**						**Log-transformed Statistics**	
530					Minimum Detected	13					Minimum Detected	2.565

	A–E	F	G–K	L
531	Maximum Detected	310	Maximum Detected	5.737
532	Mean of Detected	125	Mean of Detected	4.529
533	SD of Detected	86.72	SD of Detected	0.952
534	Minimum Non-Detect	7.4	Minimum Non-Detect	2.001
535	Maximum Non-Detect	11	Maximum Non-Detect	2.398
536				
537	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
538	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	9
539	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	40.00%
540				
541	**UCL Statistics**			
542	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
543	Shapiro Wilk Test Statistic	0.908	Shapiro Wilk Test Statistic	0.873
544	5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
545	**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
546				
547	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
548	DL/2 Substitution Method		DL/2 Substitution Method	
549	Mean	76.69	Mean	3.289
550	SD	89.71	SD	1.732
551	95% DL/2 (t) UCL	117.5	95% H-Stat (DL/2) UCL	594.2
552				
553	Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
554	Mean	43.41	Mean in Log Scale	3.651
555	SD	126.4	SD in Log Scale	1.333
556	95% MLE (t) UCL	100.9	Mean in Original Scale	79.22
557	95% MLE (Tiku) UCL	108.3	SD in Original Scale	87.57
558			95% Percentile Bootstrap UCL	117
559			95% BCA Bootstrap UCL	122.7
560				
561	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
562	k star (bias corrected)	1.288	**Data appear Normal at 5% Significance Level**	
563	Theta Star	97.01		
564	nu star	23.19		
565				
566	A-D Test Statistic	0.439	**Nonparametric Statistics**	
567	5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
568	K-S Test Statistic	0.731	Mean	80.2
569	5% K-S Critical Value	0.283	SD	83.8
570	**Data appear Gamma Distributed at 5% Significance Level**		SE of Mean	22.95
571			95% KM (t) UCL	120.6
572	**Assuming Gamma Distribution**		95% KM (z) UCL	117.9
573	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	116.9
574	Minimum	0	95% KM (bootstrap t) UCL	127.3
575	Maximum	310	95% KM (BCA) UCL	146.7
576	Mean	78.42	95% KM (percentile) UCL	137.3
577	Median	32	95% KM (Chebyshev) UCL	180.2
578	SD	88.49	97.5% KM (Chebyshev) UCL	223.5
579	k star	0.162	99% KM (Chebyshev) UCL	308.5
580	Theta star	484.4		
581	Nu star	4.857	**Potential UCLs to Use**	
582	AppChi2	1.087	95% KM (t) UCL	120.6
583	95% Gamma Approximate UCL	350.5	95% KM (Percentile Bootstrap) UCL	137.3

	A	B	C	D	E	F	G	H	I	J	K	L
584					95% Adjusted Gamma UCL	429.5						
585												
586												
587	**Dieldrin**											
588												
589						**General Statistics**						
590					Number of Valid Samples	15				Number of Detected Data		13
591					Number of Unique Samples	13				Number of Non-Detect Data		2
592										Percent Non-Detects		13.33%
593												
594				**Raw Statistics**						**Log-transformed Statistics**		
595					Minimum Detected	0.93				Minimum Detected		-0.0726
596					Maximum Detected	33				Maximum Detected		3.497
597					Mean of Detected	7.787				Mean of Detected		1.432
598					SD of Detected	8.994				SD of Detected		1.215
599					Minimum Non-Detect	0.73				Minimum Non-Detect		-0.315
600					Maximum Non-Detect	0.74				Maximum Non-Detect		-0.301
601												
602	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		2
603	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		13
604	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		13.33%
605												
606						**UCL Statistics**						
607				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
608					Shapiro Wilk Test Statistic	0.764				Shapiro Wilk Test Statistic		0.917
609					5% Shapiro Wilk Critical Value	0.866				5% Shapiro Wilk Critical Value		0.866
610				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
611												
612				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
613					DL/2 Substitution Method					DL/2 Substitution Method		
614					Mean	6.798				Mean		1.107
615					SD	8.727				SD		1.414
616					95% DL/2 (t) UCL	10.77				95% H-Stat (DL/2) UCL		25.49
617												
618					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
619					Mean	6.075				Mean in Log Scale		1.053
620					SD	9.313				SD in Log Scale		1.504
621					95% MLE (t) UCL	10.31				Mean in Original Scale		6.781
622					95% MLE (Tiku) UCL	10.16				SD in Original Scale		8.74
623										95% Percentile Bootstrap UCL		10.64
624										95% BCA Bootstrap UCL		11.94
625												
626				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
627					k star (bias corrected)	0.772				**Data appear Gamma Distributed at 5% Significance Level**		
628					Theta Star	10.08						
629					nu star	20.08						
630												
631					A-D Test Statistic	0.45				**Nonparametric Statistics**		
632					5% A-D Critical Value	0.761				Kaplan-Meier (KM) Method		
633					K-S Test Statistic	0.761				Mean		6.873
634					5% K-S Critical Value	0.244				SD		8.376
635				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		2.251
636										95% KM (t) UCL		10.84

	A	B	C	D	E	F	G	H	I	J	K	L
637	**Assuming Gamma Distribution**										95% KM (z) UCL	10.57
638				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	10.81
639					Minimum	0					95% KM (bootstrap t) UCL	13.13
640					Maximum	33					95% KM (BCA) UCL	11.05
641					Mean	6.749					95% KM (percentile) UCL	10.97
642					Median	3					95% KM (Chebyshev) UCL	16.68
643					SD	8.766					97.5% KM (Chebyshev) UCL	20.93
644					k star	0.214					99% KM (Chebyshev) UCL	29.27
645					Theta star	31.48						
646					Nu star	6.432	**Potential UCLs to Use**					
647					AppChi2	1.864					95% KM (Chebyshev) UCL	16.68
648					95% Gamma Approximate UCL	23.28						
649					95% Adjusted Gamma UCL	27.51						
650												
651												
652	**Aluminum**											
653												
654					**General Statistics**							
655					Number of Valid Samples	15					Number of Unique Samples	15
656												
657				**Raw Statistics**						**Log-transformed Statistics**		
658					Minimum	1800					Minimum of Log Data	7.496
659					Maximum	23300					Maximum of Log Data	10.06
660					Mean	6039					Mean of log Data	8.431
661					Median	3510					SD of log Data	0.718
662					SD	5573						
663					Coefficient of Variation	0.923						
664					Skewness	2.387						
665												
666					**Relevant UCL Statistics**							
667				**Normal Distribution Test**						**Lognormal Distribution Test**		
668					Shapiro Wilk Test Statistic	0.717					Shapiro Wilk Test Statistic	0.937
669					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
670				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
671												
672				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
673					95% Student's-t UCL	8573					95% H-UCL	9278
674				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	10773
675					95% Adjusted-CLT UCL	9353					97.5% Chebyshev (MVUE) UCL	12918
676					95% Modified-t UCL	8721					99% Chebyshev (MVUE) UCL	17134
677												
678				**Gamma Distribution Test**						**Nonparametric Test**		
679					k star (bias corrected)	1.619				**Data appear Gamma Distributed at 5% Significance Level**		
680					Theta Star	3729						
681					nu star	48.58						
682					Approximate Chi Square Value (.05)	33.58				**Nonparametric Statistics**		
683					Adjusted Level of Significance	0.0324					95% CLT UCL	8406
684					Adjusted Chi Square Value	32.05					95% Jackknife UCL	8573
685											95% Standard Bootstrap UCL	8345
686					Anderson-Darling Test Statistic	0.646					95% Bootstrap-t UCL	11080
687					Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	18027
688					Kolmogorov-Smirnov Test Statistic	0.207					95% Percentile Bootstrap UCL	8625
689					Kolmogorov-Smirnov 5% Critical Value	0.224					95% BCA Bootstrap UCL	9425

	A	B	C	D	E	F	G	H	I	J	K	L
690	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	12311
691											97.5% Chebyshev(Mean, Sd) UCL	15025
692	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	20357
693					95% Approximate Gamma UCL	8736						
694					95% Adjusted Gamma UCL	9153						
695												
696	Potential UCL to Use										Use 95% Approximate Gamma UCL	8736
697												
698												
699	Antimony											
700												
701	General Statistics											
702					Number of Valid Samples	15					Number of Detected Data	8
703					Number of Unique Samples	8					Number of Non-Detect Data	7
704											Percent Non-Detects	46.67%
705												
706	Raw Statistics						Log-transformed Statistics					
707					Minimum Detected	0.29					Minimum Detected	-1.238
708					Maximum Detected	3.6					Maximum Detected	1.281
709					Mean of Detected	2.008					Mean of Detected	0.333
710					SD of Detected	1.406					SD of Detected	1.046
711					Minimum Non-Detect	0.1					Minimum Non-Detect	-2.303
712					Maximum Non-Detect	1.7					Maximum Non-Detect	0.531
713												
714	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
715	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
716	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	73.33%
717												
718	UCL Statistics											
719	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
720					Shapiro Wilk Test Statistic	0.87					Shapiro Wilk Test Statistic	0.833
721					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
722	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
723												
724	Assuming Normal Distribution						Assuming Lognormal Distribution					
725					DL/2 Substitution Method						DL/2 Substitution Method	
726					Mean	1.266					Mean	-0.35
727					SD	1.301					SD	1.216
728					95% DL/2 (t) UCL	1.858					95% H-Stat (DL/2) UCL	3.248
729												
730					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
731					Mean	1.133					Mean in Log Scale	-0.485
732					SD	1.845					SD in Log Scale	1.206
733					95% MLE (t) UCL	1.972					Mean in Original Scale	1.191
734					95% MLE (Tiku) UCL	2.597					SD in Original Scale	1.344
735											95% Percentile Bootstrap UCL	1.787
736											95% BCA Bootstrap UCL	1.83
737												
738	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
739					k star (bias corrected)	1.034	Data appear Normal at 5% Significance Level					
740					Theta Star	1.942						
741					nu star	16.54						
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743					A-D Test Statistic	0.549	Nonparametric Statistics					
744					5% A-D Critical Value	0.728					Kaplan-Meier (KM) Method	
745					K-S Test Statistic	0.728					Mean	1.228
746					5% K-S Critical Value	0.299					SD	1.278
747	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.354
748											95% KM (t) UCL	1.852
749			Assuming Gamma Distribution								95% KM (z) UCL	1.811
750				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.829
751					Minimum	1.447					95% KM (bootstrap t) UCL	1.944
752					Maximum	3.6					95% KM (BCA) UCL	2.127
753					Mean	2.473					95% KM (percentile) UCL	1.941
754					Median	2.431					95% KM (Chebyshev) UCL	2.773
755					SD	0.623					97.5% KM (Chebyshev) UCL	3.441
756					k star	13.43					99% KM (Chebyshev) UCL	4.754
757					Theta star	0.184						
758					Nu star	402.9	Potential UCLs to Use					
759					AppChi2	357.4					95% KM (t) UCL	1.852
760					95% Gamma Approximate UCL	2.788					95% KM (Percentile Bootstrap) UCL	1.941
761					95% Adjusted Gamma UCL	2.83						
762												
763												
764	Arsenic											
765												
766					General Statistics							
767					Number of Valid Samples	15					Number of Unique Samples	15
768												
769				Raw Statistics						Log-transformed Statistics		
770					Minimum	2.7					Minimum of Log Data	0.993
771					Maximum	92.3					Maximum of Log Data	4.525
772					Mean	24.28					Mean of log Data	2.748
773					Median	15.4					SD of log Data	1.024
774					SD	24.01						
775					Coefficient of Variation	0.989						
776					Skewness	1.865						
777												
778					Relevant UCL Statistics							
779				Normal Distribution Test						Lognormal Distribution Test		
780					Shapiro Wilk Test Statistic	0.806					Shapiro Wilk Test Statistic	0.97
781					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
782				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
783												
784				Assuming Normal Distribution						Assuming Lognormal Distribution		
785					95% Student's-t UCL	35.2					95% H-UCL	56.43
786				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	56.78
787					95% Adjusted-CLT UCL	37.67					97.5% Chebyshev (MVUE) UCL	70.49
788					95% Modified-t UCL	35.7					99% Chebyshev (MVUE) UCL	97.42
789												
790				Gamma Distribution Test						Nonparametric Test		
791					k star (bias corrected)	1.061				Data appear Gamma Distributed at 5% Significance Level		
792					Theta Star	22.88						
793					nu star	31.84						
794					Approximate Chi Square Value (.05)	19.95				Nonparametric Statistics		
795					Adjusted Level of Significance	0.0324					95% CLT UCL	34.48

	A	B	C	D	E	F	G	H	I	J	K	L
796					Adjusted Chi Square Value	18.8					95% Jackknife UCL	35.2
797											95% Standard Bootstrap UCL	34.05
798					Anderson-Darling Test Statistic	0.215					95% Bootstrap-t UCL	41.33
799					Anderson-Darling 5% Critical Value	0.758					95% Hall's Bootstrap UCL	84.01
800					Kolmogorov-Smirnov Test Statistic	0.101					95% Percentile Bootstrap UCL	35.12
801					Kolmogorov-Smirnov 5% Critical Value	0.227					95% BCA Bootstrap UCL	38.51
802					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	51.3
803											97.5% Chebyshev(Mean, Sd) UCL	62.99
804					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	85.96
805					95% Approximate Gamma UCL	38.76						
806					95% Adjusted Gamma UCL	41.14						
807												
808					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	38.76
809												
810												
811	**Barium**											
812												
813					**General Statistics**							
814					Number of Valid Samples	15					Number of Detected Data	10
815					Number of Unique Samples	10					Number of Non-Detect Data	5
816											Percent Non-Detects	33.33%
817												
818					**Raw Statistics**						**Log-transformed Statistics**	
819					Minimum Detected	8.7					Minimum Detected	2.163
820					Maximum Detected	203					Maximum Detected	5.313
821					Mean of Detected	82.05					Mean of Detected	3.895
822					SD of Detected	73.97					SD of Detected	1.181
823					Minimum Non-Detect	40					Minimum Non-Detect	3.689
824					Maximum Non-Detect	55					Maximum Non-Detect	4.007
825												
826	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
827	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	5
828	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	66.67%
829												
830					**UCL Statistics**							
831					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
832					Shapiro Wilk Test Statistic	0.859					Shapiro Wilk Test Statistic	0.898
833					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
834					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
835												
836					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
837					DL/2 Substitution Method						DL/2 Substitution Method	
838					Mean	62.37					Mean	3.64
839					SD	65.95					SD	1.019
840					95% DL/2 (t) UCL	92.36					95% H-Stat (DL/2) UCL	150.9
841												
842					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
843					Mean	147.2					Mean in Log Scale	3.594
844					SD	46.93					SD in Log Scale	1.055
845					95% MLE (t) UCL	168.5					Mean in Original Scale	61.55
846					95% MLE (Tiku) UCL	183.7					SD in Original Scale	66.53
847											95% Percentile Bootstrap UCL	89.59
848											95% BCA Bootstrap UCL	92.9

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
851					k star (bias corrected)	0.845	**Data appear Normal at 5% Significance Level**					
852					Theta Star	97.06						
853					nu star	16.91						
854												
855					A-D Test Statistic	0.435	**Nonparametric Statistics**					
856					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
857					K-S Test Statistic	0.746					Mean	61.57
858					5% K-S Critical Value	0.273					SD	64.44
859	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	17.67
860											95% KM (t) UCL	92.69
861	**Assuming Gamma Distribution**										95% KM (z) UCL	90.63
862			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	92.25
863					Minimum	0					95% KM (bootstrap t) UCL	102.8
864					Maximum	203					95% KM (BCA) UCL	91.44
865					Mean	70.4					95% KM (percentile) UCL	89.63
866					Median	57.5					95% KM (Chebyshev) UCL	138.6
867					SD	64.78					97.5% KM (Chebyshev) UCL	171.9
868					k star	0.21					99% KM (Chebyshev) UCL	237.4
869					Theta star	334.6						
870					Nu star	6.312	**Potential UCLs to Use**					
871					AppChi2	1.801					95% KM (t) UCL	92.69
872					95% Gamma Approximate UCL	246.7					95% KM (Percentile Bootstrap) UCL	89.63
873					95% Adjusted Gamma UCL	292.1						
874												
875												
876	**Cadmium**											
877												
878					**General Statistics**							
879					Number of Valid Samples	15					Number of Detected Data	14
880					Number of Unique Samples	14					Number of Non-Detect Data	1
881											Percent Non-Detects	6.67%
882												
883				**Raw Statistics**						**Log-transformed Statistics**		
884					Minimum Detected	0.11					Minimum Detected	-2.207
885					Maximum Detected	14.7					Maximum Detected	2.688
886					Mean of Detected	4.383					Mean of Detected	0.467
887					SD of Detected	5.168					SD of Detected	1.699
888					Minimum Non-Detect	0.046					Minimum Non-Detect	-3.079
889					Maximum Non-Detect	0.046					Maximum Non-Detect	-3.079
890												
891												
892					**UCL Statistics**							
893	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
894					Shapiro Wilk Test Statistic	0.8					Shapiro Wilk Test Statistic	0.927
895					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
896	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
897												
898	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
899					DL/2 Substitution Method						DL/2 Substitution Method	
900					Mean	4.092					Mean	0.184
901					SD	5.106					SD	1.969

	A	B	C	D	E	F	G	H	I	J	K	L
902					95% DL/2 (t) UCL	6.414				95% H-Stat (DL/2) UCL		76.1
903												
904				Maximum Likelihood Estimate(MLE) Method						Robust ROS Method		
905					Mean	3.893				Mean in Log Scale		0.191
906					SD	5.189				SD in Log Scale		1.955
907					95% MLE (t) UCL	6.253				Mean in Original Scale		4.092
908					95% MLE (Tiku) UCL	6.122				SD in Original Scale		5.106
909										95% Percentile Bootstrap UCL		6.319
910										95% BCA Bootstrap UCL		6.574
911												
912				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
913					k star (bias corrected)	0.527				**Data appear Gamma Distributed at 5% Significance Level**		
914					Theta Star	8.322						
915					nu star	14.75						
916												
917					A-D Test Statistic	0.458				**Nonparametric Statistics**		
918					5% A-D Critical Value	0.783				Kaplan-Meier (KM) Method		
919					K-S Test Statistic	0.783				Mean		4.098
920					5% K-S Critical Value	0.24				SD		4.928
921				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		1.32
922										95% KM (t) UCL		6.424
923				**Assuming Gamma Distribution**						95% KM (z) UCL		6.27
924				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		6.415
925					Minimum	0.11				95% KM (bootstrap t) UCL		7.446
926					Maximum	14.7				95% KM (BCA) UCL		6.426
927					Mean	4.114				95% KM (percentile) UCL		6.363
928					Median	1.25				95% KM (Chebyshev) UCL		9.853
929					SD	5.087				97.5% KM (Chebyshev) UCL		12.34
930					k star	0.517				99% KM (Chebyshev) UCL		17.24
931					Theta star	7.954						
932					Nu star	15.52				**Potential UCLs to Use**		
933					AppChi2	7.623				95% KM (Chebyshev) UCL		9.853
934					95% Gamma Approximate UCL	8.375						
935					95% Adjusted Gamma UCL	9.185						
936												
937												
938	**Chromium**											
939												
940					**General Statistics**							
941					Number of Valid Samples	15				Number of Unique Samples		15
942												
943				**Raw Statistics**						**Log-transformed Statistics**		
944					Minimum	6				Minimum of Log Data		1.792
945					Maximum	153				Maximum of Log Data		5.03
946					Mean	51.36				Mean of log Data		3.287
947					Median	14.5				SD of log Data		1.198
948					SD	56.18						
949					Coefficient of Variation	1.094						
950					Skewness	0.914						
951												
952					**Relevant UCL Statistics**							
953				**Normal Distribution Test**						**Lognormal Distribution Test**		
954					Shapiro Wilk Test Statistic	0.751				Shapiro Wilk Test Statistic		0.828

	A	B	C	D	E	F	G	H	I	J	K	L
955					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
956				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
957												
958				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
959					95% Student's-t UCL	76.91					95% H-UCL	146.6
960				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	127.6
961					95% Adjusted-CLT UCL	78.88					97.5% Chebyshev (MVUE) UCL	160.8
962					95% Modified-t UCL	77.48					99% Chebyshev (MVUE) UCL	225.9
963												
964				**Gamma Distribution Test**						**Nonparametric Test**		
965					k star (bias corrected)	0.762				**Data do not follow a Discernable Distribution (0.05)**		
966					Theta Star	67.37						
967					nu star	22.87						
968					Approximate Chi Square Value (.05)	12.99				**Nonparametric Statistics**		
969					Adjusted Level of Significance	0.0324					95% CLT UCL	75.22
970					Adjusted Chi Square Value	12.08					95% Jackknife UCL	76.91
971											95% Standard Bootstrap UCL	74.02
972					Anderson-Darling Test Statistic	1.384					95% Bootstrap-t UCL	82.26
973					Anderson-Darling 5% Critical Value	0.768					95% Hall's Bootstrap UCL	72.68
974					Kolmogorov-Smirnov Test Statistic	0.297					95% Percentile Bootstrap UCL	76.4
975					Kolmogorov-Smirnov 5% Critical Value	0.229					95% BCA Bootstrap UCL	77.53
976				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	114.6
977											97.5% Chebyshev(Mean, Sd) UCL	141.9
978				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	195.7
979					95% Approximate Gamma UCL	90.4						
980					95% Adjusted Gamma UCL	97.21						
981												
982				**Potential UCL to Use**							Use 99% Chebyshev (Mean, Sd) UCL	195.7
983				**Recommended UCL exceeds the maximum observation**								
984												
985												
986	**Copper**											
987												
988				**General Statistics**								
989					Number of Valid Samples	15					Number of Unique Samples	14
990												
991				**Raw Statistics**						**Log-transformed Statistics**		
992					Minimum	5.7					Minimum of Log Data	1.74
993					Maximum	218					Maximum of Log Data	5.384
994					Mean	72.23					Mean of log Data	3.508
995					Median	19.5					SD of log Data	1.333
996					SD	82.76						
997					Coefficient of Variation	1.146						
998					Skewness	0.89						
999												
1000				**Relevant UCL Statistics**								
1001				**Normal Distribution Test**						**Lognormal Distribution Test**		
1002					Shapiro Wilk Test Statistic	0.743					Shapiro Wilk Test Statistic	0.867
1003					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1004				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1005												
1006				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1007					95% Student's-t UCL	109.9					95% H-UCL	264

	A	B	C	D	E	F	G	H	I	J	K	L
1008				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		198.3
1009				95% Adjusted-CLT UCL		112.6				97.5% Chebyshev (MVUE) UCL		252.3
1010				95% Modified-t UCL		110.7				99% Chebyshev (MVUE) UCL		358.3
1011												
1012				**Gamma Distribution Test**						**Nonparametric Test**		
1013				k star (bias corrected)		0.662				**Data do not follow a Discernable Distribution (0.05)**		
1014				Theta Star		109						
1015				nu star		19.87						
1016				Approximate Chi Square Value (.05)		10.76				**Nonparametric Statistics**		
1017				Adjusted Level of Significance		0.0324				95% CLT UCL		107.4
1018				Adjusted Chi Square Value		9.939				95% Jackknife UCL		109.9
1019										95% Standard Bootstrap UCL		106.7
1020				Anderson-Darling Test Statistic		1.159				95% Bootstrap-t UCL		118.5
1021				Anderson-Darling 5% Critical Value		0.774				95% Hall's Bootstrap UCL		101.9
1022				Kolmogorov-Smirnov Test Statistic		0.238				95% Percentile Bootstrap UCL		106.5
1023				Kolmogorov-Smirnov 5% Critical Value		0.23				95% BCA Bootstrap UCL		110.4
1024				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		165.4
1025										97.5% Chebyshev(Mean, Sd) UCL		205.7
1026				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		284.8
1027				95% Approximate Gamma UCL		133.4						
1028				95% Adjusted Gamma UCL		144.4						
1029												
1030				**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL		284.8
1031				**Recommended UCL exceeds the maximum observation**								
1032												
1033												
1034	**Iron**											
1035												
1036				**General Statistics**								
1037				Number of Valid Samples		15				Number of Unique Samples		15
1038												
1039				**Raw Statistics**						**Log-transformed Statistics**		
1040				Minimum		3600				Minimum of Log Data		8.189
1041				Maximum		46300				Maximum of Log Data		10.74
1042				Mean		15518				Mean of log Data		9.401
1043				Median		13600				SD of log Data		0.753
1044				SD		11367						
1045				Coefficient of Variation		0.733						
1046				Skewness		1.456						
1047												
1048				**Relevant UCL Statistics**								
1049				**Normal Distribution Test**						**Lognormal Distribution Test**		
1050				Shapiro Wilk Test Statistic		0.857				Shapiro Wilk Test Statistic		0.939
1051				Shapiro Wilk Critical Value		0.881				Shapiro Wilk Critical Value		0.881
1052				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1053												
1054				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1055				95% Student's-t UCL		20687				95% H-UCL		25919
1056				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		29807
1057				95% Adjusted-CLT UCL		21524				97.5% Chebyshev (MVUE) UCL		35913
1058				95% Modified-t UCL		20871				99% Chebyshev (MVUE) UCL		47906
1059												
1060				**Gamma Distribution Test**						**Nonparametric Test**		

	A	B	C	D	E	F	G	H	I	J	K	L
1061					k star (bias corrected)	1.772	**Data appear Gamma Distributed at 5% Significance Level**					
1062					Theta Star	8757						
1063					nu star	53.16						
1064					Approximate Chi Square Value (.05)	37.41	**Nonparametric Statistics**					
1065					Adjusted Level of Significance	0.0324					95% CLT UCL	20346
1066					Adjusted Chi Square Value	35.79					95% Jackknife UCL	20687
1067											95% Standard Bootstrap UCL	20322
1068					Anderson-Darling Test Statistic	0.411					95% Bootstrap-t UCL	22840
1069					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	25076
1070					Kolmogorov-Smirnov Test Statistic	0.154					95% Percentile Bootstrap UCL	20447
1071					Kolmogorov-Smirnov 5% Critical Value	0.224					95% BCA Bootstrap UCL	20877
1072			**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	28311
1073											97.5% Chebyshev(Mean, Sd) UCL	33847
1074			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	44720
1075					95% Approximate Gamma UCL	22051						
1076					95% Adjusted Gamma UCL	23051						
1077												
1078			**Potential UCL to Use**								Use 95% Approximate Gamma UCL	22051
1079												
1080												
1081	**Lead**											
1082												
1083					**General Statistics**							
1084					Number of Valid Samples	15					Number of Unique Samples	15
1085												
1086			**Raw Statistics**				**Log-transformed Statistics**					
1087					Minimum	8.3					Minimum of Log Data	2.116
1088					Maximum	206					Maximum of Log Data	5.328
1089					Mean	70.98					Mean of log Data	3.577
1090					Median	20					SD of log Data	1.244
1091					SD	77.98						
1092					Coefficient of Variation	1.099						
1093					Skewness	0.86						
1094												
1095					**Relevant UCL Statistics**							
1096			**Normal Distribution Test**				**Lognormal Distribution Test**					
1097					Shapiro Wilk Test Statistic	0.749					Shapiro Wilk Test Statistic	0.849
1098					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1099			**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**					
1100												
1101			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
1102					95% Student's-t UCL	106.4					95% H-UCL	221
1103			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	183.6
1104					95% Adjusted-CLT UCL	108.9					97.5% Chebyshev (MVUE) UCL	232.1
1105					95% Modified-t UCL	107.2					99% Chebyshev (MVUE) UCL	327.4
1106												
1107			**Gamma Distribution Test**				**Nonparametric Test**					
1108					k star (bias corrected)	0.731	**Data do not follow a Discernable Distribution (0.05)**					
1109					Theta Star	97.09						
1110					nu star	21.93						
1111					Approximate Chi Square Value (.05)	12.29	**Nonparametric Statistics**					
1112					Adjusted Level of Significance	0.0324					95% CLT UCL	104.1
1113					Adjusted Chi Square Value	11.4					95% Jackknife UCL	106.4

	A	B	C	D	E	F	G	H	I	J	K	L
1114											95% Standard Bootstrap UCL	103.4
1115					Anderson-Darling Test Statistic	1.193					95% Bootstrap-t UCL	117.1
1116					Anderson-Darling 5% Critical Value	0.77					95% Hall's Bootstrap UCL	99.21
1117					Kolmogorov-Smirnov Test Statistic	0.254					95% Percentile Bootstrap UCL	105
1118					Kolmogorov-Smirnov 5% Critical Value	0.229					95% BCA Bootstrap UCL	107.2
1119					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	158.7
1120											97.5% Chebyshev(Mean, Sd) UCL	196.7
1121					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	271.3
1122					95% Approximate Gamma UCL	126.7						
1123					95% Adjusted Gamma UCL	136.5						
1124												
1125					**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL	271.3
1126					**Recommended UCL exceeds the maximum observation**							
1127												
1128												
1129	**Manganese**											
1130												
1131					**General Statistics**							
1132					Number of Valid Samples	15					Number of Unique Samples	15
1133												
1134					**Raw Statistics**						**Log-transformed Statistics**	
1135					Minimum	30					Minimum of Log Data	3.401
1136					Maximum	484					Maximum of Log Data	6.182
1137					Mean	182.1					Mean of log Data	4.904
1138					Median	124					SD of log Data	0.832
1139					SD	143.2						
1140					Coefficient of Variation	0.786						
1141					Skewness	1.079						
1142												
1143					**Relevant UCL Statistics**							
1144					**Normal Distribution Test**						**Lognormal Distribution Test**	
1145					Shapiro Wilk Test Statistic	0.863					Shapiro Wilk Test Statistic	0.968
1146					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881
1147					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1148												
1149					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1150					95% Student's-t UCL	247.3					95% H-UCL	331.5
1151					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	370.7
1152					95% Adjusted-CLT UCL	254					97.5% Chebyshev (MVUE) UCL	451
1153					95% Modified-t UCL	249					99% Chebyshev (MVUE) UCL	608.8
1154												
1155					**Gamma Distribution Test**						**Nonparametric Test**	
1156					k star (bias corrected)	1.492					**Data appear Gamma Distributed at 5% Significance Level**	
1157					Theta Star	122.1						
1158					nu star	44.77						
1159					Approximate Chi Square Value (.05)	30.42					**Nonparametric Statistics**	
1160					Adjusted Level of Significance	0.0324					95% CLT UCL	243
1161					Adjusted Chi Square Value	28.97					95% Jackknife UCL	247.3
1162											95% Standard Bootstrap UCL	240.9
1163					Anderson-Darling Test Statistic	0.279					95% Bootstrap-t UCL	269.3
1164					Anderson-Darling 5% Critical Value	0.749					95% Hall's Bootstrap UCL	250.2
1165					Kolmogorov-Smirnov Test Statistic	0.124					95% Percentile Bootstrap UCL	240.4
1166					Kolmogorov-Smirnov 5% Critical Value	0.225					95% BCA Bootstrap UCL	244.6

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		343.3
1168										97.5% Chebyshev(Mean, Sd) UCL		413
1169	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		550
1170				95% Approximate Gamma UCL		268						
1171				95% Adjusted Gamma UCL		281.5						
1172												
1173	Potential UCL to Use									Use 95% Approximate Gamma UCL		268
1174												
1175												
1176	Mercury											
1177												
1178	General Statistics											
1179				Number of Valid Samples		15				Number of Detected Data		8
1180				Number of Unique Samples		8				Number of Non-Detect Data		7
1181										Percent Non-Detects		46.67%
1182												
1183	Raw Statistics						Log-transformed Statistics					
1184				Minimum Detected		0.017				Minimum Detected		-4.075
1185				Maximum Detected		0.58				Maximum Detected		-0.545
1186				Mean of Detected		0.338				Mean of Detected		-1.486
1187				SD of Detected		0.213				SD of Detected		1.227
1188				Minimum Non-Detect		0.046				Minimum Non-Detect		-3.079
1189				Maximum Non-Detect		0.072				Maximum Non-Detect		-2.631
1190												
1191	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		8
1192	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		7
1193	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		53.33%
1194												
1195	UCL Statistics											
1196	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1197				Shapiro Wilk Test Statistic		0.911				Shapiro Wilk Test Statistic		0.79
1198				5% Shapiro Wilk Critical Value		0.818				5% Shapiro Wilk Critical Value		0.818
1199	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
1200												
1201	Assuming Normal Distribution						Assuming Lognormal Distribution					
1202				DL/2 Substitution Method						DL/2 Substitution Method		
1203				Mean		0.193				Mean		-2.47
1204				SD		0.22				SD		1.396
1205				95% DL/2 (t) UCL		0.293				95% H-Stat (DL/2) UCL		0.752
1206												
1207				Maximum Likelihood Estimate(MLE) Method						Robust ROS Method		
1208				Mean		0.0633				Mean in Log Scale		-2.478
1209				SD		0.358				SD in Log Scale		1.399
1210				95% MLE (t) UCL		0.226				Mean in Original Scale		0.193
1211				95% MLE (Tiku) UCL		0.271				SD in Original Scale		0.22
1212										95% Percentile Bootstrap UCL		0.284
1213										95% BCA Bootstrap UCL		0.298
1214												
1215	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1216				k star (bias corrected)		0.953	Data appear Normal at 5% Significance Level					
1217				Theta Star		0.354						
1218				nu star		15.26						
1219												

	A	B	C	D	E	F	G	H	I	J	K	L
1220					A-D Test Statistic	0.614	Nonparametric Statistics					
1221					5% A-D Critical Value	0.73					Kaplan-Meier (KM) Method	
1222					K-S Test Statistic	0.73					Mean	0.188
1223					5% K-S Critical Value	0.299					SD	0.216
1224	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0597
1225											95% KM (t) UCL	0.293
1226			Assuming Gamma Distribution								95% KM (z) UCL	0.286
1227				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.282
1228					Minimum	0.00686					95% KM (bootstrap t) UCL	0.296
1229					Maximum	0.58					95% KM (BCA) UCL	0.405
1230					Mean	0.234					95% KM (percentile) UCL	0.347
1231					Median	0.167					95% KM (Chebyshev) UCL	0.448
1232					SD	0.193					97.5% KM (Chebyshev) UCL	0.561
1233					k star	1.032					99% KM (Chebyshev) UCL	0.782
1234					Theta star	0.227						
1235					Nu star	30.95	Potential UCLs to Use					
1236					AppChi2	19.24					95% KM (t) UCL	0.293
1237					95% Gamma Approximate UCL	0.376					95% KM (Percentile Bootstrap) UCL	0.347
1238					95% Adjusted Gamma UCL	0.4						
1239												
1240												
1241	Thallium											
1242												
1243					General Statistics							
1244					Number of Valid Samples	15					Number of Detected Data	4
1245					Number of Unique Samples	4					Number of Non-Detect Data	11
1246											Percent Non-Detects	73.33%
1247												
1248				Raw Statistics						Log-transformed Statistics		
1249					Minimum Detected	0.023					Minimum Detected	-3.772
1250					Maximum Detected	1.3					Maximum Detected	0.262
1251					Mean of Detected	0.356					Mean of Detected	-2.369
1252					SD of Detected	0.629					SD of Detected	1.794
1253					Minimum Non-Detect	0.43					Minimum Non-Detect	-0.844
1254					Maximum Non-Detect	0.95					Maximum Non-Detect	-0.0513
1255												
1256	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
1257	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
1258	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
1259												
1260					UCL Statistics							
1261				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1262					Shapiro Wilk Test Statistic	0.65					Shapiro Wilk Test Statistic	0.809
1263					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
1264				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
1265												
1266				Assuming Normal Distribution						Assuming Lognormal Distribution		
1267					DL/2 Substitution Method						DL/2 Substitution Method	
1268					Mean	0.351					Mean	-1.425
1269					SD	0.3					SD	1.04
1270					95% DL/2 (t) UCL	0.487					95% H-Stat (DL/2) UCL	2.361
1271												
1272					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	

	A	B	C	D	E	F	G	H	I	J	K	L
1273											Mean in Log Scale	-2.91
1274											SD in Log Scale	0.897
1275											Mean in Original Scale	0.128
1276											SD in Original Scale	0.324
1277											95% Percentile Bootstrap UCL	0.295
1278											95% BCA Bootstrap UCL	0.379
1279												
1280				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
1281					k star (bias corrected)	0.286			**Data appear Lognormal at 5% Significance Level**			
1282					Theta Star	1.244						
1283					nu star	2.29						
1284												
1285					A-D Test Statistic	0.702			**Nonparametric Statistics**			
1286					5% A-D Critical Value	0.683					Kaplan-Meier (KM) Method	
1287					K-S Test Statistic	0.683					Mean	0.125
1288					5% K-S Critical Value	0.411					SD	0.314
1289				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.094
1290											95% KM (t) UCL	0.291
1291				**Assuming Gamma Distribution**							95% KM (z) UCL	0.28
1292					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.274
1293					Minimum	N/A					95% KM (bootstrap t) UCL	1.842
1294					Maximum	N/A					95% KM (BCA) UCL	1.3
1295					Mean	N/A					95% KM (percentile) UCL	0.375
1296					Median	N/A					95% KM (Chebyshev) UCL	0.535
1297					SD	N/A					97.5% KM (Chebyshev) UCL	0.712
1298					k star	N/A					99% KM (Chebyshev) UCL	1.06
1299					Theta star	N/A						
1300					Nu star	N/A			**Potential UCLs to Use**			
1301					AppChi2	N/A					97.5% KM (Chebyshev) UCL	0.712
1302					95% Gamma Approximate UCL	N/A						
1303					95% Adjusted Gamma UCL	N/A						
1304												
1305												
1306	**Vanadium**											
1307												
1308					**General Statistics**							
1309					Number of Valid Samples	15					Number of Detected Data	11
1310					Number of Unique Samples	11					Number of Non-Detect Data	4
1311											Percent Non-Detects	26.67%
1312												
1313				**Raw Statistics**					**Log-transformed Statistics**			
1314					Minimum Detected	3.4					Minimum Detected	1.224
1315					Maximum Detected	48.9					Maximum Detected	3.89
1316					Mean of Detected	18.64					Mean of Detected	2.643
1317					SD of Detected	13.62					SD of Detected	0.838
1318					Minimum Non-Detect	10					Minimum Non-Detect	2.303
1319					Maximum Non-Detect	14					Maximum Non-Detect	2.639
1320												
1321	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
1322	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
1323	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	60.00%
1324												
1325					**UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
1326	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1327					Shapiro Wilk Test Statistic	0.905					Shapiro Wilk Test Statistic	0.942
1328					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
1329	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1330												
1331	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1332					DL/2 Substitution Method						DL/2 Substitution Method	
1333					Mean	15.23					Mean	2.408
1334					SD	12.92					SD	0.818
1335					95% DL/2 (t) UCL	21.11					95% H-Stat (DL/2) UCL	27.59
1336												
1337					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1338					Mean	9.429					Mean in Log Scale	2.424
1339					SD	19.11					SD in Log Scale	0.803
1340					95% MLE (t) UCL	18.12					Mean in Original Scale	15.32
1341					95% MLE (Tiku) UCL	21.66					SD in Original Scale	12.85
1342											95% Percentile Bootstrap UCL	21.04
1343											95% BCA Bootstrap UCL	21.92
1344												
1345	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
1346					k star (bias corrected)	1.457	**Data appear Normal at 5% Significance Level**					
1347					Theta Star	12.79						
1348					nu star	32.05						
1349												
1350					A-D Test Statistic	0.313	**Nonparametric Statistics**					
1351					5% A-D Critical Value	0.739					Kaplan-Meier (KM) Method	
1352					K-S Test Statistic	0.739					Mean	15.23
1353					5% K-S Critical Value	0.259					SD	12.52
1354	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	3.407
1355											95% KM (t) UCL	21.23
1356	**Assuming Gamma Distribution**										95% KM (z) UCL	20.83
1357					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	21.17
1358					Minimum	0					95% KM (bootstrap t) UCL	22.89
1359					Maximum	48.9					95% KM (BCA) UCL	21.03
1360					Mean	14.7					95% KM (percentile) UCL	21.14
1361					Median	12					95% KM (Chebyshev) UCL	30.08
1362					SD	13.74					97.5% KM (Chebyshev) UCL	36.5
1363					k star	0.215					99% KM (Chebyshev) UCL	49.13
1364					Theta star	68.3						
1365					Nu star	6.458	**Potential UCLs to Use**					
1366					AppChi2	1.878					95% KM (t) UCL	21.23
1367					95% Gamma Approximate UCL	50.56					95% KM (Percentile Bootstrap) UCL	21.14
1368					95% Adjusted Gamma UCL	59.7						
1369												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Adjacent to LF SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	15			Number of Distinct Observations	15	
13												
14				Raw Statistics						Log-transformed Statistics		
15						Minimum	0.012			Minimum of Log Data	-4.423	
16						Maximum	1.6			Maximum of Log Data	0.47	
17						Mean	0.553			Mean of log Data	-1.154	
18						Median	0.61			SD of log Data	1.358	
19						SD	0.459					
20						Coefficient of Variation	0.831					
21						Skewness	0.764					
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test						Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.908			Shapiro Wilk Test Statistic	0.886	
26						Shapiro Wilk Critical Value	0.881			Shapiro Wilk Critical Value	0.881	
27				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
28												
29				Assuming Normal Distribution						Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.762			95% H-UCL	2.681	
31				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	1.953	
32						95% Adjusted-CLT UCL	0.773			97.5% Chebyshev (MVUE) UCL	2.489	
33						95% Modified-t UCL	0.766			99% Chebyshev (MVUE) UCL	3.54	
34												
35				Gamma Distribution Test						Data Distribution		
36						k star (bias corrected)	0.864			Data appear Normal at 5% Significance Level		
37						Theta Star	0.64					
38						nu star	25.92					
39						Approximate Chi Square Value (.05)	15.32			Nonparametric Statistics		
40						Adjusted Level of Significance	0.0324			95% CLT UCL	0.748	
41						Adjusted Chi Square Value	14.32			95% Jackknife UCL	0.762	
42										95% Standard Bootstrap UCL	0.739	
43						Anderson-Darling Test Statistic	0.521			95% Bootstrap-t UCL	0.797	
44						Anderson-Darling 5% Critical Value	0.763			95% Hall's Bootstrap UCL	0.794	
45						Kolmogorov-Smirnov Test Statistic	0.222			95% Percentile Bootstrap UCL	0.739	
46						Kolmogorov-Smirnov 5% Critical Value	0.228			95% BCA Bootstrap UCL	0.773	
47				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	1.07	
48										97.5% Chebyshev(Mean, Sd) UCL	1.293	
49				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	1.732	
50						95% Approximate Gamma UCL	0.935					
51						95% Adjusted Gamma UCL	1.001					
52												
53				Potential UCL to Use						Use 95% Student's-t UCL	0.762	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Carbazole**											
57												
58						**General Statistics**						
59					Number of Valid Data	15				Number of Detected Data		10
60					Number of Distinct Detected Data	8				Number of Non-Detect Data		5
61										Percent Non-Detects		33.33%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.078				Minimum Detected		-2.551
65					Maximum Detected	0.63				Maximum Detected		-0.462
66					Mean of Detected	0.198				Mean of Detected		-1.806
67					SD of Detected	0.16				SD of Detected		0.582
68					Minimum Non-Detect	0.08				Minimum Non-Detect		-2.526
69					Maximum Non-Detect	0.4				Maximum Non-Detect		-0.916
70												
71				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		14
72				For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected		1
73				Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		93.33%
74												
75						**UCL Statistics**						
76				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
77					Shapiro Wilk Test Statistic	0.659				Shapiro Wilk Test Statistic		0.899
78					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
79				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
80												
81				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
82					DL/2 Substitution Method					DL/2 Substitution Method		
83					Mean	0.184				Mean		-1.867
84					SD	0.134				SD		0.601
85					95% DL/2 (t) UCL	0.245				95% H-Stat (DL/2) UCL		0.35
86												
87					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
88				**MLE method failed to converge properly**						Mean in Log Scale		-1.916
89										SD in Log Scale		0.535
90										Mean in Original Scale		0.174
91										SD in Original Scale		0.135
92										95% Percentile Bootstrap UCL		0.238
93										95% BCA Bootstrap UCL		0.269
94												
95				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
96					k star (bias corrected)	2.063				**Data appear Gamma Distributed at 5% Significance Level**		
97					Theta Star	0.0959						
98					nu star	41.26						
99												
100					A-D Test Statistic	0.726				**Nonparametric Statistics**		
101					5% A-D Critical Value	0.733				Kaplan-Meier (KM) Method		
102					K-S Test Statistic	0.733				Mean		0.175
103					5% K-S Critical Value	0.269				SD		0.132
104				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0368
105										95% KM (t) UCL		0.24
106				**Assuming Gamma Distribution**						95% KM (z) UCL		0.236

	A	B	C	D	E	F	G	H	I	J	K	L
107					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.238
108					Minimum	0.0286					95% KM (bootstrap t) UCL	0.31
109					Maximum	0.63					95% KM (BCA) UCL	0.251
110					Mean	0.19					95% KM (Percentile Bootstrap) UCL	0.242
111					Median	0.15					95% KM (Chebyshev) UCL	0.336
112					SD	0.138					97.5% KM (Chebyshev) UCL	0.405
113					k star	2.163					99% KM (Chebyshev) UCL	0.542
114					Theta star	0.0877						
115					Nu star	64.89			**Potential UCLs to Use**			
116					AppChi2	47.36					95% KM (Percentile Bootstrap) UCL	0.242
117					95% Gamma Approximate UCL	0.26						
118					95% Adjusted Gamma UCL	0.27						
119	**Note: DL/2 is not a recommended method.**											
120												
121												
122	**Dibenzofuran**											
123												
124					**General Statistics**							
125					Number of Valid Data	15					Number of Detected Data	6
126					Number of Distinct Detected Data	6					Number of Non-Detect Data	9
127											Percent Non-Detects	60.00%
128												
129					**Raw Statistics**				**Log-transformed Statistics**			
130					Minimum Detected	0.062					Minimum Detected	-2.781
131					Maximum Detected	0.5					Maximum Detected	-0.693
132					Mean of Detected	0.157					Mean of Detected	-2.152
133					SD of Detected	0.169					SD of Detected	0.745
134					Minimum Non-Detect	0.08					Minimum Non-Detect	-2.526
135					Maximum Non-Detect	0.63					Maximum Non-Detect	-0.462
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
138	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
139	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
140												
141					**Warning: There are only 6 Detected Values in this data**							
142					**Note: It should be noted that even though bootstrap may be performed on this data set**							
143					**the resulting calculations may not be reliable enough tp draw conclusions**							
144												
145					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
146												
147												
148					**UCL Statistics**							
149					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
150					Shapiro Wilk Test Statistic	0.6					Shapiro Wilk Test Statistic	0.758
151					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
152					**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**			
153												
154					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
155					DL/2 Substitution Method						DL/2 Substitution Method	
156					Mean	0.159					Mean	-2.089
157					SD	0.124					SD	0.734
158					95% DL/2 (t) UCL	0.215					95% H-Stat (DL/2) UCL	0.35
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
161				**MLE method failed to converge properly**							Mean in Log Scale	-2.402
162											SD in Log Scale	0.525
163											Mean in Original Scale	0.11
164											SD in Original Scale	0.109
165											95% Percentile Bootstrap UCL	0.164
166											95% BCA Bootstrap UCL	0.196
167												
168				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
169					k star (bias corrected)	1.012			**Data do not follow a Discernable Distribution (0.05)**			
170					Theta Star	0.155						
171					nu star	12.15						
172												
173					A-D Test Statistic	1.004			**Nonparametric Statistics**			
174					5% A-D Critical Value	0.706					Kaplan-Meier (KM) Method	
175					K-S Test Statistic	0.706					Mean	0.112
176					5% K-S Critical Value	0.336					SD	0.109
177				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.0323
178											95% KM (t) UCL	0.169
179				**Assuming Gamma Distribution**							95% KM (z) UCL	0.165
180					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.164
181					Minimum	0.062					95% KM (bootstrap t) UCL	0.349
182					Maximum	0.5					95% KM (BCA) UCL	0.18
183					Mean	0.158					95% KM (Percentile Bootstrap) UCL	0.172
184					Median	0.157					95% KM (Chebyshev) UCL	0.253
185					SD	0.101					97.5% KM (Chebyshev) UCL	0.314
186					k star	3.452					99% KM (Chebyshev) UCL	0.434
187					Theta star	0.0458						
188					Nu star	103.6			**Potential UCLs to Use**			
189					AppChi2	81.07					95% KM (t) UCL	0.169
190					95% Gamma Approximate UCL	0.202					95% KM (% Bootstrap) UCL	0.172
191					95% Adjusted Gamma UCL	0.208						
192	**Note: DL/2 is not a recommended method.**											
193												
194												
195	**Phenanthrene**											
196												
197					**General Statistics**							
198					Number of Valid Observations	15					Number of Distinct Observations	14
199												
200				**Raw Statistics**					**Log-transformed Statistics**			
201					Minimum	0.066					Minimum of Log Data	-2.718
202					Maximum	5.3					Maximum of Log Data	1.668
203					Mean	1.228					Mean of log Data	-0.367
204					Median	0.94					SD of log Data	1.251
205					SD	1.324						
206					Coefficient of Variation	1.078						
207					Skewness	2.282						
208												
209					**Relevant UCL Statistics**							
210				**Normal Distribution Test**					**Lognormal Distribution Test**			
211					Shapiro Wilk Test Statistic	0.756					Shapiro Wilk Test Statistic	0.928
212					Shapiro Wilk Critical Value	0.881					Shapiro Wilk Critical Value	0.881

	A	B	C	D	E	F	G	H	I	J	K	L
213	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
214												
215	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
216					95% Student's-t UCL	1.83					95% H-UCL	4.361
217	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	3.596
218					95% Adjusted-CLT UCL	2.006					97.5% Chebyshev (MVUE) UCL	4.548
219					95% Modified-t UCL	1.864					99% Chebyshev (MVUE) UCL	6.419
220												
221	**Gamma Distribution Test**						**Data Distribution**					
222					k star (bias corrected)	0.85	**Data appear Gamma Distributed at 5% Significance Level**					
223					Theta Star	1.444						
224					nu star	25.51						
225					Approximate Chi Square Value (.05)	15	**Nonparametric Statistics**					
226					Adjusted Level of Significance	0.0324					95% CLT UCL	1.791
227					Adjusted Chi Square Value	14.02					95% Jackknife UCL	1.83
228											95% Standard Bootstrap UCL	1.765
229					Anderson-Darling Test Statistic	0.352					95% Bootstrap-t UCL	2.33
230					Anderson-Darling 5% Critical Value	0.763					95% Hall's Bootstrap UCL	4.612
231					Kolmogorov-Smirnov Test Statistic	0.139					95% Percentile Bootstrap UCL	1.796
232					Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	2.021
233	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	2.719
234											97.5% Chebyshev(Mean, Sd) UCL	3.363
235	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	4.63
236					95% Approximate Gamma UCL	2.088						
237					95% Adjusted Gamma UCL	2.235						
238												
239	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	2.088
240												
241												
242	**Cobalt**											
243												
244	**General Statistics**											
245					Number of Valid Data	15					Number of Detected Data	9
246					Number of Distinct Detected Data	9					Number of Non-Detect Data	6
247											Percent Non-Detects	40.00%
248												
249	**Raw Statistics**						**Log-transformed Statistics**					
250					Minimum Detected	1.1					Minimum Detected	0.0953
251					Maximum Detected	16					Maximum Detected	2.773
252					Mean of Detected	3.822					Mean of Detected	0.979
253					SD of Detected	4.654					SD of Detected	0.784
254					Minimum Non-Detect	10					Minimum Non-Detect	2.303
255					Maximum Non-Detect	16					Maximum Non-Detect	2.773
256												
257	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
258	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
259	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
260												
261	**Warning: There are only 9 Detected Values in this data**											
262	**Note: It should be noted that even though bootstrap may be performed on this data set**											
263	**the resulting calculations may not be reliable enough tp draw conclusions**											
264												
265	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267												
268						UCL Statistics						
269				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
270						Shapiro Wilk Test Statistic	0.57				Shapiro Wilk Test Statistic	0.863
271						5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value	0.829
272				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
273												
274				Assuming Normal Distribution						Assuming Lognormal Distribution		
275						DL/2 Substitution Method					DL/2 Substitution Method	
276						Mean	5.027				Mean	1.349
277						SD	3.912				SD	0.766
278						95% DL/2 (t) UCL	6.806				95% H-Stat (DL/2) UCL	11.8
279												
280						Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method	
281				MLE method failed to converge properly							Mean in Log Scale	0.918
282											SD in Log Scale	0.61
283											Mean in Original Scale	3.223
284											SD in Original Scale	3.61
285											95% Percentile Bootstrap UCL	4.904
286											95% BCA Bootstrap UCL	6.005
287												
288				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
289						k star (bias corrected)	1.091			Data appear Lognormal at 5% Significance Level		
290						Theta Star	3.502					
291						nu star	19.65					
292												
293						A-D Test Statistic	0.959			Nonparametric Statistics		
294						5% A-D Critical Value	0.734				Kaplan-Meier (KM) Method	
295						K-S Test Statistic	0.734				Mean	3.213
296						5% K-S Critical Value	0.284				SD	3.526
297				Data not Gamma Distributed at 5% Significance Level							SE of Mean	0.987
298											95% KM (t) UCL	4.952
299				Assuming Gamma Distribution							95% KM (z) UCL	4.837
300						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	4.921
301						Minimum	1.1				95% KM (bootstrap t) UCL	8.486
302						Maximum	16				95% KM (BCA) UCL	4.942
303						Mean	3.826				95% KM (Percentile Bootstrap) UCL	4.992
304						Median	3.255				95% KM (Chebyshev) UCL	7.516
305						SD	3.525				97.5% KM (Chebyshev) UCL	9.378
306						k star	1.996				99% KM (Chebyshev) UCL	13.04
307						Theta star	1.917					
308						Nu star	59.87			Potential UCLs to Use		
309						AppChi2	43.08				95% KM (t) UCL	4.952
310						95% Gamma Approximate UCL	5.317				95% KM (% Bootstrap) UCL	4.992
311						95% Adjusted Gamma UCL	5.542					
312	Note: DL/2 is not a recommended method.											
313												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Adjacent to LF SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11						General Statistics						
12						Number of Valid Data	9			Number of Detected Data		1
13						Number of Distinct Detected Data	1			Number of Non-Detect Data		8
14										Percent Non-Detects		88.89%
15												
16						Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!						
17						It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).						
18												
19						The data set for variable 1,4-Dichlorobenzene was not processed!						
20												
21												
22												
23	Benzo(g,h,i)perylene											
24												
25						General Statistics						
26						Number of Valid Data	9			Number of Detected Data		1
27						Number of Distinct Detected Data	1			Number of Non-Detect Data		8
28										Percent Non-Detects		88.89%
29												
30						Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!						
31						It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).						
32												
33						The data set for variable Benzo(g,h,i)perylene was not processed!						
34												
35												
36												
37	Cobalt											
38												
39						General Statistics						
40						Number of Valid Data	9			Number of Detected Data		4
41						Number of Distinct Detected Data	4			Number of Non-Detect Data		5
42										Percent Non-Detects		55.56%
43												
44						Raw Statistics				Log-transformed Statistics		
45						Minimum Detected	0.59			Minimum Detected		-0.528
46						Maximum Detected	9.2			Maximum Detected		2.219
47						Mean of Detected	2.809			Mean of Detected		0.257
48						SD of Detected	4.262			SD of Detected		1.315
49						Minimum Non-Detect	0.5			Minimum Non-Detect		-0.693
50						Maximum Non-Detect	0.64			Maximum Non-Detect		-0.446
51												
52	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
53	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		3

	A	B	C	D	E	F	G	H	I	J	K	L
54	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		66.67%
55												
56	**Warning: There are only 4 Distinct Detected Values in this data**											
57	**Note: It should be noted that even though bootstrap may be performed on this data set**											
58	**the resulting calculations may not be reliable enough tp draw conclusions**											
59												
60	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
61												
62												
63	**UCL Statistics**											
64	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
65					Shapiro Wilk Test Statistic	0.649				Shapiro Wilk Test Statistic		0.715
66					5% Shapiro Wilk Critical Value	0.748				5% Shapiro Wilk Critical Value		0.748
67	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
68												
69	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
70					DL/2 Substitution Method					DL/2 Substitution Method		
71					Mean	1.407				Mean		-0.585
72					SD	2.929				SD		1.136
73					95% DL/2 (t) UCL	3.222				95% H-Stat (DL/2) UCL		1.881
74												
75					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
76	**MLE yields a negative mean**									Mean in Log Scale		-1.555
77										SD in Log Scale		1.903
78										Mean in Original Scale		1.276
79										SD in Original Scale		2.987
80										95% Percentile Bootstrap UCL		3.221
81										95% BCA Bootstrap UCL		4.183
82												
83	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
84					k star (bias corrected)	0.359	**Data do not follow a Discernable Distribution (0.05)**					
85					Theta Star	7.825						
86					nu star	2.872						
87												
88					A-D Test Statistic	0.816	**Nonparametric Statistics**					
89					5% A-D Critical Value	0.67				Kaplan-Meier (KM) Method		
90					K-S Test Statistic	0.67				Mean		1.576
91					5% K-S Critical Value	0.405				SD		2.696
92	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1.038
93										95% KM (t) UCL		3.506
94	**Assuming Gamma Distribution**									95% KM (z) UCL		3.283
95					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3.328
96					Minimum	1E-09				95% KM (bootstrap t) UCL		42.44
97					Maximum	9.2				95% KM (BCA) UCL		9.2
98					Mean	1.248				95% KM (Percentile Bootstrap) UCL		3.493
99					Median	1E-09				95% KM (Chebyshev) UCL		6.1
100					SD	3				97.5% KM (Chebyshev) UCL		8.057
101					k star	0.122				99% KM (Chebyshev) UCL		11.9
102					Theta star	10.19						
103					Nu star	2.204	**Potential UCLs to Use**					
104					AppChi2	0.182				95% KM (BCA) UCL		9.2
105					95% Gamma Approximate UCL	15.13						
106					95% Adjusted Gamma UCL	N/A						

	A	B	C	D	E	F	G	H	I	J	K	L
107	Note: DL/2 is not a recommended method.											
108												
109												
110	Naphthalene											
111												
112					General Statistics							
113					Number of Valid Data	9	Number of Detected Data					0
114					Number of Distinct Detected Data	0	Number of Non-Detect Data					9
115							Percent Non-Detects					100.00%
116												
117					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
118					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
119					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
120												
121					The data set for variable Naphthalene was not processed!							
122												
123												
124												
125	Phenanthrene											
126												
127					General Statistics							
128					Number of Valid Data	9	Number of Detected Data					1
129					Number of Distinct Detected Data	1	Number of Non-Detect Data					8
130							Percent Non-Detects					88.89%
131												
132					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
133					It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).							
134												
135					The data set for variable Phenanthrene was not processed!							
136												
137												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\BR-1 FI.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11						General Statistics						
12						Number of Valid Data	16		Number of Detected Data			0
13						Number of Distinct Detected Data	0		Number of Non-Detect Data			16
14									Percent Non-Detects			100.00%
15												
16						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
17						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
18						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
19												
20						The data set for variable 4-Chloro-3-methylphenol was not processed!						
21												
22												
23												
24	4-Nitrophenol											
25												
26						General Statistics						
27						Number of Valid Data	16		Number of Detected Data			0
28						Number of Distinct Detected Data	0		Number of Non-Detect Data			16
29									Percent Non-Detects			100.00%
30												
31						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
32						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
33						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
34												
35						The data set for variable 4-Nitrophenol was not processed!						
36												
37												
38												
39	Aldrin											
40												
41						General Statistics						
42						Number of Valid Data	16		Number of Detected Data			0
43						Number of Distinct Detected Data	0		Number of Non-Detect Data			16
44									Percent Non-Detects			100.00%
45												
46						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
47						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
48						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
49												
50						The data set for variable Aldrin was not processed!						
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	**Benzaldehyde**											
55												
56						**General Statistics**						
57					Number of Valid Data	16				Number of Detected Data		4
58					Number of Distinct Detected Data	4				Number of Non-Detect Data		12
59										Percent Non-Detects		75.00%
60												
61					**Raw Statistics**					**Log-transformed Statistics**		
62					Minimum Detected	0.086				Minimum Detected		-2.453
63					Maximum Detected	0.17				Maximum Detected		-1.772
64					Mean of Detected	0.111				Mean of Detected		-2.24
65					SD of Detected	0.0398				SD of Detected		0.319
66					Minimum Non-Detect	0.15				Minimum Non-Detect		-1.897
67					Maximum Non-Detect	0.16				Maximum Non-Detect		-1.833
68												
69	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
70	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
71	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
72												
73					**Warning: There are only 4 Distinct Detected Values in this data**							
74					**Note: It should be noted that even though bootstrap may be performed on this data set**							
75					**the resulting calculations may not be reliable enough tp draw conclusions**							
76												
77					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
78												
79												
80						**UCL Statistics**						
81					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
82					Shapiro Wilk Test Statistic	0.75				Shapiro Wilk Test Statistic		0.787
83					5% Shapiro Wilk Critical Value	0.748				5% Shapiro Wilk Critical Value		0.748
84					**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
85												
86					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
87					DL/2 Substitution Method					DL/2 Substitution Method		
88					Mean	0.0865				Mean		-2.47
89					SD	0.0231				SD		0.2
90					95% DL/2 (t) UCL	0.0966				95% H-Stat (DL/2) UCL		0.108
91												
92					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
93					**MLE method failed to converge properly**					Mean in Log Scale		-2.343
94										SD in Log Scale		0.225
95										Mean in Original Scale		0.0985
96										SD in Original Scale		0.0245
97										95% Percentile Bootstrap UCL		0.109
98										95% BCA Bootstrap UCL		0.109
99												
100					**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**		
101					k star (bias corrected)	3.229				**Data appear Normal at 5% Significance Level**		
102					Theta Star	0.0344						
103					nu star	25.84						
104												
105					A-D Test Statistic	0.614				**Nonparametric Statistics**		
106					5% A-D Critical Value	0.657				Kaplan-Meier (KM) Method		

	A	B	C	D	E	F	G	H	I	J	K	L
107					K-S Test Statistic	0.657					Mean	0.0963
108					5% K-S Critical Value	0.395					SD	0.02
109			Data appear Gamma Distributed at 5% Significance Level								SE of Mean	0.00672
110											95% KM (t) UCL	0.108
111			Assuming Gamma Distribution								95% KM (z) UCL	0.107
112				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.108
113					Minimum	0.0777					95% KM (bootstrap t) UCL	0.118
114					Maximum	0.17					95% KM (BCA) UCL	0.114
115					Mean	0.107					95% KM (Percentile Bootstrap) UCL	0.113
116					Median	0.0992					95% KM (Chebyshev) UCL	0.126
117					SD	0.0255					97.5% KM (Chebyshev) UCL	0.138
118					k star	17.03					99% KM (Chebyshev) UCL	0.163
119					Theta star	0.00628						
120					Nu star	544.9			Potential UCLs to Use			
121					AppChi2	491.8					95% KM (t) UCL	0.108
122					95% Gamma Approximate UCL	0.118					95% KM (Percentile Bootstrap) UCL	0.113
123					95% Adjusted Gamma UCL	N/A						
124	Note: DL/2 is not a recommended method.											
125												
126												
127	Endosulfan I											
128												
129					General Statistics							
130					Number of Valid Data	16					Number of Detected Data	6
131					Number of Distinct Detected Data	5					Number of Non-Detect Data	10
132											Percent Non-Detects	62.50%
133												
134					Raw Statistics						Log-transformed Statistics	
135					Minimum Detected	0.0026					Minimum Detected	-5.952
136					Maximum Detected	0.0048					Maximum Detected	-5.339
137					Mean of Detected	0.00333					Mean of Detected	-5.727
138					SD of Detected	0.0008238					SD of Detected	0.227
139					Minimum Non-Detect	0.00032					Minimum Non-Detect	-8.047
140					Maximum Non-Detect	0.00033					Maximum Non-Detect	-8.016
141												
142	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
143	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	6
144	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	62.50%
145												
146					Warning: There are only 6 Detected Values in this data							
147					Note: It should be noted that even though bootstrap may be performed on this data set							
148					the resulting calculations may not be reliable enough tp draw conclusions							
149												
150					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
151												
152												
153					UCL Statistics							
154					Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only	
155					Shapiro Wilk Test Statistic	0.828					Shapiro Wilk Test Statistic	0.865
156					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
157					Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
158												
159					Assuming Normal Distribution						Assuming Lognormal Distribution	

	A	B	C	D	E	F	G	H	I	J	K	L
160					DL/2 Substitution Method						DL/2 Substitution Method	
161					Mean	0.00135					Mean	-7.599
162					SD	0.00165					SD	1.503
163					95% DL/2 (t) UCL	0.00208					95% H-Stat (DL/2) UCL	0.00163
164												
165					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
166					**MLE yields a negative mean**						Mean in Log Scale	-6.212
167											SD in Log Scale	0.454
168											Mean in Original Scale	0.00221
169											SD in Original Scale	0.00106
170											95% Percentile Bootstrap UCL	0.00266
171											95% BCA Bootstrap UCL	0.0027
172												
173					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
174					k star (bias corrected)	11.17					**Data appear Normal at 5% Significance Level**	
175					Theta Star	0.0002985						
176					nu star	134						
177												
178					A-D Test Statistic	0.555					**Nonparametric Statistics**	
179					5% A-D Critical Value	0.697					Kaplan-Meier (KM) Method	
180					K-S Test Statistic	0.697					Mean	0.00288
181					5% K-S Critical Value	0.332					SD	0.0005815
182					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0001593
183											95% KM (t) UCL	0.00315
184					**Assuming Gamma Distribution**						95% KM (z) UCL	0.00314
185					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00313
186					Minimum	0.0026					95% KM (bootstrap t) UCL	0.00355
187					Maximum	0.0048					95% KM (BCA) UCL	0.00339
188					Mean	0.00327					95% KM (Percentile Bootstrap) UCL	0.00328
189					Median	0.00311					95% KM (Chebyshev) UCL	0.00357
190					SD	0.0005178					97.5% KM (Chebyshev) UCL	0.00387
191					k star	39.28					99% KM (Chebyshev) UCL	0.00446
192					Theta star	8.325E-05						
193					Nu star	1257					**Potential UCLs to Use**	
194					AppChi2	1176					95% KM (t) UCL	0.00315
195					95% Gamma Approximate UCL	0.0035					95% KM (Percentile Bootstrap) UCL	0.00328
196					95% Adjusted Gamma UCL	0.00352						
197	**Note: DL/2 is not a recommended method.**											
198												
199												
200	**Endosulfan II**											
201												
202					**General Statistics**							
203					Number of Valid Data	16					Number of Detected Data	1
204					Number of Distinct Detected Data	1					Number of Non-Detect Data	15
205											Percent Non-Detects	93.75%
206												
207	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
208	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
209												
210					**The data set for variable Endosulfan II was not processed!**							
211												
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Endosulfan Sulfate**											
215												
216						**General Statistics**						
217					Number of Valid Observations	16				Number of Distinct Observations		14
218												
219				**Raw Statistics**						**Log-transformed Statistics**		
220					Minimum	0.00085				Minimum of Log Data		-7.07
221					Maximum	0.0048				Maximum of Log Data		-5.339
222					Mean	0.00171				Mean of log Data		-6.535
223					Median	0.0012				SD of log Data		0.546
224					SD	0.00122						
225					Coefficient of Variation	0.713						
226					Skewness	1.995						
227												
228						**Relevant UCL Statistics**						
229				**Normal Distribution Test**						**Lognormal Distribution Test**		
230					Shapiro Wilk Test Statistic	0.689				Shapiro Wilk Test Statistic		0.845
231					Shapiro Wilk Critical Value	0.887				Shapiro Wilk Critical Value		0.887
232				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
233												
234				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
235					95% Student's-t UCL	0.00225				95% H-UCL		0.00226
236				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		0.0027
237					95% Adjusted-CLT UCL	0.00238				97.5% Chebyshev (MVUE) UCL		0.00314
238					95% Modified-t UCL	0.00227				99% Chebyshev (MVUE) UCL		0.00401
239												
240				**Gamma Distribution Test**						**Data Distribution**		
241					k star (bias corrected)	2.622				**Data do not follow a Discernable Distribution (0.05)**		
242					Theta Star	0.0006535						
243					nu star	83.89						
244					Approximate Chi Square Value (.05)	63.78				**Nonparametric Statistics**		
245					Adjusted Level of Significance	0.0335				95% CLT UCL		0.00222
246					Adjusted Chi Square Value	61.79				95% Jackknife UCL		0.00225
247										95% Standard Bootstrap UCL		0.0022
248					Anderson-Darling Test Statistic	1.218				95% Bootstrap-t UCL		0.00303
249					Anderson-Darling 5% Critical Value	0.744				95% Hall's Bootstrap UCL		0.00484
250					Kolmogorov-Smirnov Test Statistic	0.22				95% Percentile Bootstrap UCL		0.00222
251					Kolmogorov-Smirnov 5% Critical Value	0.217				95% BCA Bootstrap UCL		0.00239
252				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		0.00304
253										97.5% Chebyshev(Mean, Sd) UCL		0.00362
254				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		0.00475
255					95% Approximate Gamma UCL	0.00225						
256					95% Adjusted Gamma UCL	0.00233						
257												
258				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL		0.00304
259												
260												
261	**Heptachlor**											
262												
263						**General Statistics**						
264					Number of Valid Data	16				Number of Detected Data		0
265					Number of Distinct Detected Data	0				Number of Non-Detect Data		16

	A	B	C	D	E	F	G	H	I	J	K	L
266										Percent Non-Detects		100.00%
267												
268	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
269	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
270	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
271												
272	The data set for variable Heptachlor was not processed!											
273												
274												
275												
276	Hexachlorobenzene											
277												
278	General Statistics											
279					Number of Valid Data	16				Number of Detected Data		0
280					Number of Distinct Detected Data	0				Number of Non-Detect Data		16
281										Percent Non-Detects		100.00%
282												
283	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
284	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
285	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
286												
287	The data set for variable Hexachlorobenzene was not processed!											
288												
289												
290												
291	Isophorone											
292												
293	General Statistics											
294					Number of Valid Data	16				Number of Detected Data		4
295					Number of Distinct Detected Data	4				Number of Non-Detect Data		12
296										Percent Non-Detects		75.00%
297												
298	Raw Statistics						Log-transformed Statistics					
299					Minimum Detected	0.086				Minimum Detected		-2.453
300					Maximum Detected	0.22				Maximum Detected		-1.514
301					Mean of Detected	0.137				Mean of Detected		-2.059
302					SD of Detected	0.0602				SD of Detected		0.416
303					Minimum Non-Detect	0.15				Minimum Non-Detect		-1.897
304					Maximum Non-Detect	0.16				Maximum Non-Detect		-1.833
305												
306	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
307	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
308	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
309												
310	Warning: There are only 4 Distinct Detected Values in this data											
311	Note: It should be noted that even though bootstrap may be performed on this data set											
312	the resulting calculations may not be reliable enough tp draw conclusions											
313												
314	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
315												
316												
317	UCL Statistics											
318	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
319					Shapiro Wilk Test Statistic	0.898					Shapiro Wilk Test Statistic	0.947
320					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
321					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
322												
323					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
324					DL/2 Substitution Method						DL/2 Substitution Method	
325					Mean	0.0926					Mean	-2.429
326					SD	0.0376					SD	0.29
327					95% DL/2 (t) UCL	0.109					95% H-Stat (DL/2) UCL	0.121
328												
329					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
330					**MLE method failed to converge properly**						Mean in Log Scale	-2.199
331											SD in Log Scale	0.299
332											Mean in Original Scale	0.116
333											SD in Original Scale	0.0378
334											95% Percentile Bootstrap UCL	0.132
335											95% BCA Bootstrap UCL	0.134
336												
337					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
338					k star (bias corrected)	2.056					**Data appear Normal at 5% Significance Level**	
339					Theta Star	0.0664						
340					nu star	16.45						
341												
342					A-D Test Statistic	0.304					**Nonparametric Statistics**	
343					5% A-D Critical Value	0.658					Kaplan-Meier (KM) Method	
344					K-S Test Statistic	0.658					Mean	0.116
345					5% K-S Critical Value	0.395					SD	0.0349
346					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	0.0163
347											95% KM (t) UCL	0.144
348					**Assuming Gamma Distribution**						95% KM (z) UCL	0.142
349					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.149
350					Minimum	0.086					95% KM (bootstrap t) UCL	0.144
351					Maximum	0.22					95% KM (BCA) UCL	0.15
352					Mean	0.132					95% KM (Percentile Bootstrap) UCL	0.15
353					Median	0.128					95% KM (Chebyshev) UCL	0.187
354					SD	0.0324					97.5% KM (Chebyshev) UCL	0.217
355					k star	15.9					99% KM (Chebyshev) UCL	0.278
356					Theta star	0.00827						
357					Nu star	508.9					**Potential UCLs to Use**	
358					AppChi2	457.6					95% KM (t) UCL	0.144
359					95% Gamma Approximate UCL	0.146					95% KM (Percentile Bootstrap) UCL	0.15
360					95% Adjusted Gamma UCL	N/A						
361	**Note: DL/2 is not a recommended method.**											
362												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\BR-2 FI.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11					General Statistics							
12				Number of Valid Data		16		Number of Detected Data				0
13				Number of Distinct Detected Data		0		Number of Non-Detect Data				16
14								Percent Non-Detects				100.00%
15												
16				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
17				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
18				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
19												
20				The data set for variable 4-Chloro-3-methylphenol was not processed!								
21												
22												
23												
24	4-Nitrophenol											
25												
26					General Statistics							
27				Number of Valid Data		16		Number of Detected Data				0
28				Number of Distinct Detected Data		0		Number of Non-Detect Data				16
29								Percent Non-Detects				100.00%
30												
31				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
32				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
33				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
34												
35				The data set for variable 4-Nitrophenol was not processed!								
36												
37												
38												
39	Aldrin											
40												
41					General Statistics							
42				Number of Valid Data		16		Number of Detected Data				0
43				Number of Distinct Detected Data		0		Number of Non-Detect Data				16
44								Percent Non-Detects				100.00%
45												
46				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
47				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
48				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
49												
50				The data set for variable Aldrin was not processed!								
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	**Benzaldehyde**											
55												
56						**General Statistics**						
57					Number of Valid Data	16				Number of Detected Data		0
58					Number of Distinct Detected Data	0				Number of Non-Detect Data		16
59										Percent Non-Detects		100.00%
60												
61					**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**							
62					**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**							
63					**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**							
64												
65					**The data set for variable Benzaldehyde was not processed!**							
66												
67												
68												
69	**Endosulfan I**											
70												
71						**General Statistics**						
72					Number of Valid Data	16				Number of Detected Data		0
73					Number of Distinct Detected Data	0				Number of Non-Detect Data		16
74										Percent Non-Detects		100.00%
75												
76					**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**							
77					**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**							
78					**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**							
79												
80					**The data set for variable Endosulfan I was not processed!**							
81												
82												
83												
84	**Endosulfan II**											
85												
86						**General Statistics**						
87					Number of Valid Data	16				Number of Detected Data		1
88					Number of Distinct Detected Data	1				Number of Non-Detect Data		15
89										Percent Non-Detects		93.75%
90												
91					**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**							
92					**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**							
93												
94					**The data set for variable Endosulfan II was not processed!**							
95												
96												
97												
98	**Endosulfan Sulfate**											
99												
100						**General Statistics**						
101					Number of Valid Observations	16				Number of Distinct Observations		13
102												
103					**Raw Statistics**					**Log-transformed Statistics**		
104					Minimum	0.0029				Minimum of Log Data		-5.843
105					Maximum	0.018				Maximum of Log Data		-4.017
106					Mean	0.00751				Mean of log Data		-5.07

	A	B	C	D	E	F	G	H	I	J	K	L
107					Median	0.006					SD of log Data	0.62
108					SD	0.00465						
109					Coefficient of Variation	0.62						
110					Skewness	0.946						
111												
112					Relevant UCL Statistics							
113			Normal Distribution Test						Lognormal Distribution Test			
114					Shapiro Wilk Test Statistic	0.886					Shapiro Wilk Test Statistic	0.922
115					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
116			Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level			
117												
118			Assuming Normal Distribution						Assuming Lognormal Distribution			
119					95% Student's-t UCL	0.00954					95% H-UCL	0.0108
120			95% UCLs (Adjusted for Skewness)								95% Chebyshev (MVUE) UCL	0.0128
121					95% Adjusted-CLT UCL	0.00971					97.5% Chebyshev (MVUE) UCL	0.0151
122					95% Modified-t UCL	0.00959					99% Chebyshev (MVUE) UCL	0.0196
123												
124			Gamma Distribution Test						Data Distribution			
125					k star (bias corrected)	2.45			Data appear Gamma Distributed at 5% Significance Level			
126					Theta Star	0.00306						
127					nu star	78.39						
128					Approximate Chi Square Value (.05)	58.99			Nonparametric Statistics			
129					Adjusted Level of Significance	0.0335					95% CLT UCL	0.00942
130					Adjusted Chi Square Value	57.07					95% Jackknife UCL	0.00954
131											95% Standard Bootstrap UCL	0.00934
132					Anderson-Darling Test Statistic	0.453					95% Bootstrap-t UCL	0.0102
133					Anderson-Darling 5% Critical Value	0.745					95% Hall's Bootstrap UCL	0.0098
134					Kolmogorov-Smirnov Test Statistic	0.144					95% Percentile Bootstrap UCL	0.00954
135					Kolmogorov-Smirnov 5% Critical Value	0.217					95% BCA Bootstrap UCL	0.00954
136			Data appear Gamma Distributed at 5% Significance Level								95% Chebyshev(Mean, Sd) UCL	0.0126
137											97.5% Chebyshev(Mean, Sd) UCL	0.0148
138			Assuming Gamma Distribution								99% Chebyshev(Mean, Sd) UCL	0.0191
139					95% Approximate Gamma UCL	0.00997						
140					95% Adjusted Gamma UCL	0.0103						
141												
142			Potential UCL to Use								Use 95% Approximate Gamma UCL	0.00997
143												
144												
145	Heptachlor											
146												
147					General Statistics							
148					Number of Valid Data	16					Number of Detected Data	1
149					Number of Distinct Detected Data	1					Number of Non-Detect Data	15
150											Percent Non-Detects	93.75%
151												
152			Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!									
153	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
154												
155			The data set for variable Heptachlor was not processed!									
156												
157												
158												
159	Hexachlorobenzene											

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161						General Statistics						
162					Number of Valid Data	16				Number of Detected Data		1
163					Number of Distinct Detected Data	1				Number of Non-Detect Data		15
164										Percent Non-Detects		93.75%
165												
166					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
167					It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).							
168												
169					The data set for variable Hexachlorobenzene was not processed!							
170												
171												
172												
173	Isophorone											
174												
175						General Statistics						
176					Number of Valid Data	16				Number of Detected Data		7
177					Number of Distinct Detected Data	7				Number of Non-Detect Data		9
178										Percent Non-Detects		56.25%
179												
180					Raw Statistics					Log-transformed Statistics		
181					Minimum Detected	0.21				Minimum Detected		-1.561
182					Maximum Detected	0.52				Maximum Detected		-0.654
183					Mean of Detected	0.336				Mean of Detected		-1.131
184					SD of Detected	0.104				SD of Detected		0.303
185					Minimum Non-Detect	0.29				Minimum Non-Detect		-1.238
186					Maximum Non-Detect	0.31				Maximum Non-Detect		-1.171
187												
188	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		12
189	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		4
190	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		75.00%
191												
192					Warning: There are only 7 Detected Values in this data							
193					Note: It should be noted that even though bootstrap may be performed on this data set							
194					the resulting calculations may not be reliable enough tp draw conclusions							
195												
196					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
197												
198												
199						UCL Statistics						
200					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
201					Shapiro Wilk Test Statistic	0.955				Shapiro Wilk Test Statistic		0.992
202					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
203					Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
204												
205					Assuming Normal Distribution					Assuming Lognormal Distribution		
206					DL/2 Substitution Method					DL/2 Substitution Method		
207					Mean	0.231				Mean		-1.562
208					SD	0.116				SD		0.437
209					95% DL/2 (t) UCL	0.282				95% H-Stat (DL/2) UCL		0.264
210												
211					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
212					Mean	0.206				Mean in Log Scale		-1.29

	A	B	C	D	E	F	G	H	I	J	K	L
213					SD	0.153					SD in Log Scale	0.264
214					95% MLE (t) UCL	0.273					Mean in Original Scale	0.285
215					95% MLE (Tiku) UCL	0.341					SD in Original Scale	0.0848
216											95% Percentile Bootstrap UCL	0.318
217											95% BCA Bootstrap UCL	0.327
218												
219				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
220					k star (bias corrected)	7.368			**Data appear Normal at 5% Significance Level**			
221					Theta Star	0.0456						
222					nu star	103.2						
223												
224					A-D Test Statistic	0.165			**Nonparametric Statistics**			
225					5% A-D Critical Value	0.708					Kaplan-Meier (KM) Method	
226					K-S Test Statistic	0.708					Mean	0.288
227					5% K-S Critical Value	0.312					SD	0.0799
228				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0246
229											95% KM (t) UCL	0.331
230				**Assuming Gamma Distribution**							95% KM (z) UCL	0.328
231				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.334
232					Minimum	0.21					95% KM (bootstrap t) UCL	0.338
233					Maximum	0.52					95% KM (BCA) UCL	0.335
234					Mean	0.332					95% KM (Percentile Bootstrap) UCL	0.334
235					Median	0.318					95% KM (Chebyshev) UCL	0.395
236					SD	0.0681					97.5% KM (Chebyshev) UCL	0.441
237					k star	22.02					99% KM (Chebyshev) UCL	0.533
238					Theta star	0.0151						
239					Nu star	704.5			**Potential UCLs to Use**			
240					AppChi2	643.9					95% KM (t) UCL	0.331
241					95% Gamma Approximate UCL	0.363					95% KM (Percentile Bootstrap) UCL	0.334
242					95% Adjusted Gamma UCL	0.367						
243	**Note: DL/2 is not a recommended method.**											
244												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Downstream of LF SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	9			Number of Distinct Observations	9	
13												
14						Raw Statistics				Log-transformed Statistics		
15						Minimum	0.0275			Minimum of Log Data	-3.594	
16						Maximum	3.2			Maximum of Log Data	1.163	
17						Mean	1.27			Mean of log Data	-0.518	
18						Median	1.1			SD of log Data	1.757	
19						SD	1.082					
20						Coefficient of Variation	0.852					
21						Skewness	0.578					
22												
23												
24						Warning: There are only 9 Values in this data						
25						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
26						the resulting calculations may not be reliable enough to draw conclusions						
27												
28						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
29												
30						Relevant UCL Statistics						
31						Normal Distribution Test				Lognormal Distribution Test		
32						Shapiro Wilk Test Statistic	0.944			Shapiro Wilk Test Statistic	0.811	
33						Shapiro Wilk Critical Value	0.829			Shapiro Wilk Critical Value	0.829	
34						Data appear Normal at 5% Significance Level				Data not Lognormal at 5% Significance Level		
35												
36						Assuming Normal Distribution				Assuming Lognormal Distribution		
37						95% Student's-t UCL	1.941			95% H-UCL	65.64	
38						95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	7.303	
39						95% Adjusted-CLT UCL	1.937			97.5% Chebyshev (MVUE) UCL	9.585	
40						95% Modified-t UCL	1.952			99% Chebyshev (MVUE) UCL	14.07	
41												
42						Gamma Distribution Test				Data Distribution		
43						k star (bias corrected)	0.598			Data appear Normal at 5% Significance Level		
44						Theta Star	2.124					
45						nu star	10.76					
46						Approximate Chi Square Value (.05)	4.424			Nonparametric Statistics		
47						Adjusted Level of Significance	0.0231			95% CLT UCL	1.863	
48						Adjusted Chi Square Value	3.607			95% Jackknife UCL	1.941	
49										95% Standard Bootstrap UCL	1.833	
50						Anderson-Darling Test Statistic	0.463			95% Bootstrap-t UCL	2.121	
51						Anderson-Darling 5% Critical Value	0.75			95% Hall's Bootstrap UCL	1.942	
52						Kolmogorov-Smirnov Test Statistic	0.185			95% Percentile Bootstrap UCL	1.856	
53						Kolmogorov-Smirnov 5% Critical Value	0.289			95% BCA Bootstrap UCL	1.885	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		2.842
55										97.5% Chebyshev(Mean, Sd) UCL		3.523
56	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		4.859
57					95% Approximate Gamma UCL	3.089						
58					95% Adjusted Gamma UCL	3.789						
59												
60	Potential UCL to Use									Use 95% Student's-t UCL		1.941
61												
62												
63	Carbazole											
64												
65					General Statistics							
66					Number of Valid Data	9				Number of Detected Data		7
67					Number of Distinct Detected Data	7				Number of Non-Detect Data		2
68										Percent Non-Detects		22.22%
69												
70					Raw Statistics					Log-transformed Statistics		
71					Minimum Detected	0.058				Minimum Detected		-2.847
72					Maximum Detected	0.46				Maximum Detected		-0.777
73					Mean of Detected	0.236				Mean of Detected		-1.662
74					SD of Detected	0.156				SD of Detected		0.75
75					Minimum Non-Detect	0.39				Minimum Non-Detect		-0.942
76					Maximum Non-Detect	0.39				Maximum Non-Detect		-0.942
77												
78												
79	Warning: There are only 7 Detected Values in this data											
80	Note: It should be noted that even though bootstrap may be performed on this data set											
81	the resulting calculations may not be reliable enough tp draw conclusions											
82												
83	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
84												
85												
86					UCL Statistics							
87	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
88					Shapiro Wilk Test Statistic	0.899				Shapiro Wilk Test Statistic		0.936
89					5% Shapiro Wilk Critical Value	0.803				5% Shapiro Wilk Critical Value		0.803
90	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
91												
92	Assuming Normal Distribution						Assuming Lognormal Distribution					
93					DL/2 Substitution Method					DL/2 Substitution Method		
94					Mean	0.227				Mean		-1.656
95					SD	0.136				SD		0.649
96					95% DL/2 (t) UCL	0.311				95% H-Stat (DL/2) UCL		0.582
97												
98					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
99	MLE method failed to converge properly									Mean in Log Scale		-1.737
100										SD in Log Scale		0.68
101										Mean in Original Scale		0.215
102										SD in Original Scale		0.142
103										95% Percentile Bootstrap UCL		0.291
104										95% BCA Bootstrap UCL		0.306
105												
106	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
107					k star (bias corrected)	1.489		**Data appear Normal at 5% Significance Level**				
108					Theta Star	0.159						
109					nu star	20.84						
110												
111					A-D Test Statistic	0.33		**Nonparametric Statistics**				
112					5% A-D Critical Value	0.714				Kaplan-Meier (KM) Method		
113					K-S Test Statistic	0.714				Mean		0.219
114					5% K-S Critical Value	0.315				SD		0.137
115	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0525
116										95% KM (t) UCL		0.317
117			**Assuming Gamma Distribution**							95% KM (z) UCL		0.305
118			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		0.317
119					Minimum	0.058				95% KM (bootstrap t) UCL		0.329
120					Maximum	0.46				95% KM (BCA) UCL		0.303
121					Mean	0.237				95% KM (Percentile Bootstrap) UCL		0.303
122					Median	0.186				95% KM (Chebyshev) UCL		0.448
123					SD	0.137				97.5% KM (Chebyshev) UCL		0.547
124					k star	2.076				99% KM (Chebyshev) UCL		0.741
125					Theta star	0.114						
126					Nu star	37.37		**Potential UCLs to Use**				
127					AppChi2	24.38				95% KM (t) UCL		0.317
128					95% Gamma Approximate UCL	0.363				95% KM (Percentile Bootstrap) UCL		0.303
129					95% Adjusted Gamma UCL	0.398						
130	**Note: DL/2 is not a recommended method.**											
131												
132												
133	**Dibenzofuran**											
134												
135					**General Statistics**							
136					Number of Valid Data	9				Number of Detected Data		5
137					Number of Distinct Detected Data	5				Number of Non-Detect Data		4
138										Percent Non-Detects		44.44%
139												
140			**Raw Statistics**					**Log-transformed Statistics**				
141					Minimum Detected	0.059				Minimum Detected		-2.83
142					Maximum Detected	0.1				Maximum Detected		-2.303
143					Mean of Detected	0.0784				Mean of Detected		-2.57
144					SD of Detected	0.0189				SD of Detected		0.246
145					Minimum Non-Detect	0.15				Minimum Non-Detect		-1.897
146					Maximum Non-Detect	0.39				Maximum Non-Detect		-0.942
147												
148	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		9
149	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
150	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
151												
152					**Warning: There are only 5 Detected Values in this data**							
153					**Note: It should be noted that even though bootstrap may be performed on this data set**							
154					**the resulting calculations may not be reliable enough tp draw conclusions**							
155												
156					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
157												
158												
159					**UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
161					Shapiro Wilk Test Statistic	0.882				Shapiro Wilk Test Statistic		0.872
162					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
163	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
164												
165	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
166					DL/2 Substitution Method					DL/2 Substitution Method		
167					Mean	0.105				Mean		-2.346
168					SD	0.0528				SD		0.443
169					95% DL/2 (t) UCL	0.138				95% H-Stat (DL/2) UCL		0.207
170												
171					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
172	**MLE method failed to converge properly**									Mean in Log Scale		-2.57
173										SD in Log Scale		0.187
174										Mean in Original Scale		0.0777
175										SD in Original Scale		0.0143
176										95% Percentile Bootstrap UCL		0.0857
177										95% BCA Bootstrap UCL		0.0855
178												
179	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
180					k star (bias corrected)	8.58	**Data appear Normal at 5% Significance Level**					
181					Theta Star	0.00914						
182					nu star	85.8						
183												
184					A-D Test Statistic	0.417	**Nonparametric Statistics**					
185					5% A-D Critical Value	0.679				Kaplan-Meier (KM) Method		
186					K-S Test Statistic	0.679				Mean		0.0784
187					5% K-S Critical Value	0.357				SD		0.0169
188	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.00844
189										95% KM (t) UCL		0.0941
190	**Assuming Gamma Distribution**									95% KM (z) UCL		0.0923
191					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0949
192					Minimum	0.059				95% KM (bootstrap t) UCL		0.101
193					Maximum	0.1				95% KM (BCA) UCL		0.0926
194					Mean	0.0793				95% KM (Percentile Bootstrap) UCL		0.0922
195					Median	0.0811				95% KM (Chebyshev) UCL		0.115
196					SD	0.0144				97.5% KM (Chebyshev) UCL		0.131
197					k star	22.03				99% KM (Chebyshev) UCL		0.162
198					Theta star	0.0036						
199					Nu star	396.5	**Potential UCLs to Use**					
200					AppChi2	351.3				95% KM (t) UCL		0.0941
201					95% Gamma Approximate UCL	0.0895				95% KM (Percentile Bootstrap) UCL		0.0922
202					95% Adjusted Gamma UCL	0.0919						
203	**Note: DL/2 is not a recommended method.**											
204												
205												
206	**Phenanthrene**											
207												
208					**General Statistics**							
209					Number of Valid Observations	9				Number of Distinct Observations		9
210												
211	**Raw Statistics**						**Log-transformed Statistics**					
212					Minimum	0.007				Minimum of Log Data		-4.962

	A	B	C	D	E	F	G	H	I	J	K	L
213					Maximum	3.4				Maximum of Log Data		1.224
214					Mean	1.799				Mean of log Data		-0.269
215					Median	1.9				SD of log Data		2.179
216					SD	1.179						
217					Coefficient of Variation	0.656						
218					Skewness	-0.526						
219												
220												
221					Warning: There are only 9 Values in this data							
222					Note: It should be noted that even though bootstrap methods may be performed on this data set,							
223					the resulting calculations may not be reliable enough to draw conclusions							
224												
225					The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.							
226												
227					Relevant UCL Statistics							
228					Normal Distribution Test					Lognormal Distribution Test		
229					Shapiro Wilk Test Statistic	0.924				Shapiro Wilk Test Statistic		0.689
230					Shapiro Wilk Critical Value	0.829				Shapiro Wilk Critical Value		0.829
231					Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level		
232												
233					Assuming Normal Distribution					Assuming Lognormal Distribution		
234					95% Student's-t UCL	2.53				95% H-UCL		953.7
235					95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL		18.86
236					95% Adjusted-CLT UCL	2.372				97.5% Chebyshev (MVUE) UCL		25.03
237					95% Modified-t UCL	2.519				99% Chebyshev (MVUE) UCL		37.14
238												
239					Gamma Distribution Test					Data Distribution		
240					k star (bias corrected)	0.544				Data appear Normal at 5% Significance Level		
241					Theta Star	3.307						
242					nu star	9.792						
243					Approximate Chi Square Value (.05)	3.812				Nonparametric Statistics		
244					Adjusted Level of Significance	0.0231				95% CLT UCL		2.446
245					Adjusted Chi Square Value	3.066				95% Jackknife UCL		2.53
246										95% Standard Bootstrap UCL		2.41
247					Anderson-Darling Test Statistic	1.198				95% Bootstrap-t UCL		2.44
248					Anderson-Darling 5% Critical Value	0.755				95% Hall's Bootstrap UCL		2.393
249					Kolmogorov-Smirnov Test Statistic	0.337				95% Percentile Bootstrap UCL		2.397
250					Kolmogorov-Smirnov 5% Critical Value	0.29				95% BCA Bootstrap UCL		2.336
251					Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL		3.513
252										97.5% Chebyshev(Mean, Sd) UCL		4.254
253					Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL		5.711
254					95% Approximate Gamma UCL	4.621						
255					95% Adjusted Gamma UCL	5.745						
256												
257					Potential UCL to Use					Use 95% Student's-t UCL		2.53
258												
259												
260	Cobalt											
261												
262					General Statistics							
263					Number of Valid Data	9				Number of Detected Data		7
264					Number of Distinct Detected Data	7				Number of Non-Detect Data		2
265										Percent Non-Detects		22.22%

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267	**Raw Statistics**						**Log-transformed Statistics**					
268					Minimum Detected	1.75					Minimum Detected	0.56
269					Maximum Detected	8.6					Maximum Detected	2.152
270					Mean of Detected	5.064					Mean of Detected	1.511
271					SD of Detected	2.344					SD of Detected	0.54
272					Minimum Non-Detect	11					Minimum Non-Detect	2.398
273					Maximum Non-Detect	11					Maximum Non-Detect	2.398
274												
275												
276	**Warning: There are only 7 Detected Values in this data**											
277	**Note: It should be noted that even though bootstrap may be performed on this data set**											
278	**the resulting calculations may not be reliable enough tp draw conclusions**											
279												
280	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
281												
282												
283	**UCL Statistics**											
284	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
285					Shapiro Wilk Test Statistic	0.988					Shapiro Wilk Test Statistic	0.954
286					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
287	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
288												
289	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
290					DL/2 Substitution Method						DL/2 Substitution Method	
291					Mean	5.161					Mean	1.554
292					SD	2.039					SD	0.475
293					95% DL/2 (t) UCL	6.425					95% H-Stat (DL/2) UCL	12.05
294												
295					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
296	**MLE method failed to converge properly**										Mean in Log Scale	1.511
297											SD in Log Scale	0.489
298											Mean in Original Scale	4.988
299											SD in Original Scale	2.139
300											95% Percentile Bootstrap UCL	6.06
301											95% BCA Bootstrap UCL	6.15
302												
303	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
304					k star (bias corrected)	2.765	**Data appear Normal at 5% Significance Level**					
305					Theta Star	1.832						
306					nu star	38.7						
307												
308					A-D Test Statistic	0.179	**Nonparametric Statistics**					
309					5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method	
310					K-S Test Statistic	0.71					Mean	5.064
311					5% K-S Critical Value	0.313					SD	2.17
312	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.886
313											95% KM (t) UCL	6.712
314	**Assuming Gamma Distribution**										95% KM (z) UCL	6.521
315					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	6.742
316					Minimum	1.75					95% KM (bootstrap t) UCL	6.88
317					Maximum	8.6					95% KM (BCA) UCL	6.3
318					Mean	5.103					95% KM (Percentile Bootstrap) UCL	6.383

	A	B	C	D	E	F	G	H	I	J	K	L
319					Median	5.3					95% KM (Chebyshev) UCL	8.926
320					SD	2.137					97.5% KM (Chebyshev) UCL	10.6
321					k star	3.739					99% KM (Chebyshev) UCL	13.88
322					Theta star	1.365						
323					Nu star	67.3			**Potential UCLs to Use**			
324					AppChi2	49.42					95% KM (t) UCL	6.712
325				95% Gamma Approximate UCL		6.949					95% KM (Percentile Bootstrap) UCL	6.383
326				95% Adjusted Gamma UCL		7.433						
327	**Note: DL/2 is not a recommended method.**											
328												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Downstream of LF SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11						General Statistics						
12						Number of Valid Data	6			Number of Detected Data		0
13						Number of Distinct Detected Data	0			Number of Non-Detect Data		6
14										Percent Non-Detects		100.00%
15												
16						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
17						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
18						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
19												
20						The data set for variable 1,4-Dichlorobenzene was not processed!						
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26						General Statistics						
27						Number of Valid Data	8			Number of Detected Data		1
28						Number of Distinct Detected Data	1			Number of Non-Detect Data		7
29										Percent Non-Detects		87.50%
30												
31						Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!						
32						It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).						
33												
34						The data set for variable Benzo(g,h,i)perylene was not processed!						
35												
36												
37												
38	Cobalt											
39												
40						General Statistics						
41						Number of Valid Data	8			Number of Detected Data		3
42						Number of Distinct Detected Data	3			Number of Non-Detect Data		5
43										Percent Non-Detects		62.50%
44												
45						Raw Statistics				Log-transformed Statistics		
46						Minimum Detected	0.395			Minimum Detected		-0.929
47						Maximum Detected	1.4			Maximum Detected		0.336
48						Mean of Detected	0.768			Mean of Detected		-0.422
49						SD of Detected	0.55			SD of Detected		0.669
50						Minimum Non-Detect	0.41			Minimum Non-Detect		-0.892
51						Maximum Non-Detect	0.7			Maximum Non-Detect		-0.357
52												
53						Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect		7

	A	B	C	D	E	F	G	H	I	J	K	L
54	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
55	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	87.50%
56												
57	**Warning: There are only 3 Distinct Detected Values in this data set**											
58	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
59	**Those methods will return a 'N/A' value on your output display!**											
60												
61	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
62	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
63												
64												
65	**UCL Statistics**											
66	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
67	Shapiro Wilk Test Statistic					0.835	Shapiro Wilk Test Statistic					0.894
68	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
69	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
70												
71	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
72	DL/2 Substitution Method						DL/2 Substitution Method					
73	Mean					0.453	Mean					-1
74	SD					0.395	SD					0.615
75	95% DL/2 (t) UCL					0.718	95% H-Stat (DL/2) UCL					0.594
76												
77	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
78	**MLE method failed to converge properly**						Mean in Log Scale					-0.789
79							SD in Log Scale					0.485
80							Mean in Original Scale					0.518
81							SD in Original Scale					0.362
82							95% Percentile Bootstrap UCL					0.764
83							95% BCA Bootstrap UCL					0.795
84												
85	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
86	k star (bias corrected)					N/A	**Data appear Normal at 5% Significance Level**					
87	Theta Star					N/A						
88	nu star					N/A						
89												
90	A-D Test Statistic					0.429	**Nonparametric Statistics**					
91	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
92	K-S Test Statistic					N/A	Mean					0.541
93	5% K-S Critical Value					N/A	SD					0.328
94	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					0.142
95							95% KM (t) UCL					0.81
96	**Assuming Gamma Distribution**						95% KM (z) UCL					0.775
97	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.761
98	Minimum					N/A	95% KM (bootstrap t) UCL					1.387
99	Maximum					N/A	95% KM (BCA) UCL					1.4
100	Mean					N/A	95% KM (Percentile Bootstrap) UCL					1.4
101	Median					N/A	95% KM (Chebyshev) UCL					1.161
102	SD					N/A	97.5% KM (Chebyshev) UCL					1.43
103	k star					N/A	99% KM (Chebyshev) UCL					1.957
104	Theta star					N/A						
105	Nu star					N/A	**Potential UCLs to Use**					
106	AppChi2					N/A	95% KM (t) UCL					0.81

	A	B	C	D	E	F	G	H	I	J	K	L
107					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		1.4
108					95% Adjusted Gamma UCL	N/A						
109	Note: DL/2 is not a recommended method.											
110												
111												
112	Naphthalene											
113												
114					General Statistics							
115					Number of Valid Data	8				Number of Detected Data		3
116					Number of Distinct Detected Data	3				Number of Non-Detect Data		5
117										Percent Non-Detects		62.50%
118												
119					Raw Statistics					Log-transformed Statistics		
120					Minimum Detected	0.0067				Minimum Detected		-5.006
121					Maximum Detected	0.14				Maximum Detected		-1.966
122					Mean of Detected	0.0512				Mean of Detected		-3.983
123					SD of Detected	0.0769				SD of Detected		1.746
124					Minimum Non-Detect	0.1				Minimum Non-Detect		-2.303
125					Maximum Non-Detect	0.1				Maximum Non-Detect		-2.303
126												
127												
128					Warning: There are only 3 Distinct Detected Values in this data set							
129					The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.							
130					Those methods will return a 'N/A' value on your output display!							
131												
132					It is necessary to have 4 or more Distinct Values for bootstrap methods.							
133					It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.							
134												
135												
136					UCL Statistics							
137					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
138					Shapiro Wilk Test Statistic	0.751				Shapiro Wilk Test Statistic		0.757
139					5% Shapiro Wilk Critical Value	0.767				5% Shapiro Wilk Critical Value		0.767
140					Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level		
141												
142					Assuming Normal Distribution					Assuming Lognormal Distribution		
143					DL/2 Substitution Method					DL/2 Substitution Method		
144					Mean	0.0505				Mean		-3.366
145					SD	0.0411				SD		1.064
146					95% DL/2 (t) UCL	0.078				95% H-Stat (DL/2) UCL		0.605
147												
148					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
149					MLE method failed to converge properly					Mean in Log Scale		-4.551
150										SD in Log Scale		1.292
151										Mean in Original Scale		0.0259
152										SD in Original Scale		0.0467
153										95% Percentile Bootstrap UCL		0.057
154										95% BCA Bootstrap UCL		0.0726
155												
156					Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only		
157					k star (bias corrected)	N/A				Data do not follow a Discernable Distribution (0.05)		
158					Theta Star	N/A						
159					nu star	N/A						

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161					A-D Test Statistic	0.599				Nonparametric Statistics		
162					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
163					K-S Test Statistic	N/A					Mean	0.0235
164					5% K-S Critical Value	N/A					SD	0.0441
165			Data not Gamma Distributed at 5% Significance Level								SE of Mean	0.0191
166											95% KM (t) UCL	0.0596
167			Assuming Gamma Distribution								95% KM (z) UCL	0.0548
168				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.055
169					Minimum	N/A					95% KM (bootstrap t) UCL	6.514
170					Maximum	N/A					95% KM (BCA) UCL	0.14
171					Mean	N/A					95% KM (Percentile Bootstrap) UCL	0.14
172					Median	N/A					95% KM (Chebyshev) UCL	0.107
173					SD	N/A					97.5% KM (Chebyshev) UCL	0.143
174					k star	N/A					99% KM (Chebyshev) UCL	0.213
175					Theta star	N/A						
176					Nu star	N/A				Potential UCLs to Use		
177					AppChi2	N/A					97.5% KM (Chebyshev) UCL	0.143
178					95% Gamma Approximate UCL	N/A						
179					95% Adjusted Gamma UCL	N/A						
180					Warning: Recommended UCL exceeds the maximum observation							
181	Note: DL/2 is not a recommended method.											
182												
183												
184	Phenanthrene											
185												
186					General Statistics							
187					Number of Valid Data	8					Number of Detected Data	4
188					Number of Distinct Detected Data	4					Number of Non-Detect Data	4
189											Percent Non-Detects	50.00%
190												
191				Raw Statistics						Log-transformed Statistics		
192					Minimum Detected	0.041					Minimum Detected	-3.194
193					Maximum Detected	0.14					Maximum Detected	-1.966
194					Mean of Detected	0.0898					Mean of Detected	-2.559
195					SD of Detected	0.0525					SD of Detected	0.646
196					Minimum Non-Detect	0.1					Minimum Non-Detect	-2.303
197					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
198												
199												
200					Warning: There are only 4 Distinct Detected Values in this data							
201					Note: It should be noted that even though bootstrap may be performed on this data set							
202					the resulting calculations may not be reliable enough tp draw conclusions							
203												
204					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
205												
206												
207					UCL Statistics							
208				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
209					Shapiro Wilk Test Statistic	0.809					Shapiro Wilk Test Statistic	0.816
210					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
211					Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
214					DL/2 Substitution Method						DL/2 Substitution Method	
215					Mean	0.0699					Mean	-2.778
216					SD	0.0404					SD	0.483
217					95% DL/2 (t) UCL	0.0969					95% H-Stat (DL/2) UCL	0.136
218												
219					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
220					**MLE method failed to converge properly**						Mean in Log Scale	-2.821
221											SD in Log Scale	0.562
222											Mean in Original Scale	0.069
223											SD in Original Scale	0.0424
224											95% Percentile Bootstrap UCL	0.0933
225											95% BCA Bootstrap UCL	0.0975
226												
227	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
228					k star (bias corrected)	1.048	**Data appear Normal at 5% Significance Level**					
229					Theta Star	0.0857						
230					nu star	8.381						
231												
232					A-D Test Statistic	0.552	**Nonparametric Statistics**					
233					5% A-D Critical Value	0.659					Kaplan-Meier (KM) Method	
234					K-S Test Statistic	0.659					Mean	0.0671
235					5% K-S Critical Value	0.396					SD	0.0394
236	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0162
237											95% KM (t) UCL	0.0978
238	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0937
239					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0959
240					Minimum	0.0345					95% KM (bootstrap t) UCL	0.0861
241					Maximum	0.14					95% KM (BCA) UCL	0.133
242					Mean	0.0828					95% KM (Percentile Bootstrap) UCL	0.131
243					Median	0.076					95% KM (Chebyshev) UCL	0.138
244					SD	0.0422					97.5% KM (Chebyshev) UCL	0.168
245					k star	2.659					99% KM (Chebyshev) UCL	0.228
246					Theta star	0.0312						
247					Nu star	42.54	**Potential UCLs to Use**					
248					AppChi2	28.59					95% KM (t) UCL	0.0978
249					95% Gamma Approximate UCL	0.123					95% KM (Percentile Bootstrap) UCL	0.131
250					95% Adjusted Gamma UCL	N/A						
251	**Note: DL/2 is not a recommended method.**											
252												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Landfill SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	20			Number of Distinct Observations	18	
13												
14				Raw Statistics						Log-transformed Statistics		
15						Minimum	0.055			Minimum of Log Data	-2.9	
16						Maximum	1.4			Maximum of Log Data	0.336	
17						Mean	0.643			Mean of log Data	-0.703	
18						Median	0.6			SD of log Data	0.896	
19						SD	0.365					
20						Coefficient of Variation	0.568					
21						Skewness	0.198					
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test						Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.963			Shapiro Wilk Test Statistic	0.815	
26						Shapiro Wilk Critical Value	0.905			Shapiro Wilk Critical Value	0.905	
27				Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
28												
29				Assuming Normal Distribution						Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.784			95% H-UCL	1.222	
31				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	1.411	
32						95% Adjusted-CLT UCL	0.781			97.5% Chebyshev (MVUE) UCL	1.71	
33						95% Modified-t UCL	0.785			99% Chebyshev (MVUE) UCL	2.298	
34												
35				Gamma Distribution Test						Data Distribution		
36						k star (bias corrected)	1.787			Data appear Normal at 5% Significance Level		
37						Theta Star	0.36					
38						nu star	71.48					
39						Approximate Chi Square Value (.05)	53.01			Nonparametric Statistics		
40						Adjusted Level of Significance	0.038			95% CLT UCL	0.777	
41						Adjusted Chi Square Value	51.75			95% Jackknife UCL	0.784	
42										95% Standard Bootstrap UCL	0.776	
43						Anderson-Darling Test Statistic	0.841			95% Bootstrap-t UCL	0.787	
44						Anderson-Darling 5% Critical Value	0.752			95% Hall's Bootstrap UCL	0.775	
45						Kolmogorov-Smirnov Test Statistic	0.198			95% Percentile Bootstrap UCL	0.777	
46						Kolmogorov-Smirnov 5% Critical Value	0.196			95% BCA Bootstrap UCL	0.77	
47				Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	0.999	
48										97.5% Chebyshev(Mean, Sd) UCL	1.153	
49				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	1.455	
50						95% Approximate Gamma UCL	0.867					
51						95% Adjusted Gamma UCL	0.888					
52												
53				Potential UCL to Use						Use 95% Student's-t UCL	0.784	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Carbazole**											
57												
58						**General Statistics**						
59					Number of Valid Data	20				Number of Detected Data		17
60					Number of Distinct Detected Data	11				Number of Non-Detect Data		3
61										Percent Non-Detects		15.00%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.096				Minimum Detected		-2.343
65					Maximum Detected	0.44				Maximum Detected		-0.821
66					Mean of Detected	0.188				Mean of Detected		-1.757
67					SD of Detected	0.09				SD of Detected		0.402
68					Minimum Non-Detect	0.34				Minimum Non-Detect		-1.079
69					Maximum Non-Detect	0.39				Maximum Non-Detect		-0.942
70												
71				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		19
72				For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected		1
73				Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		95.00%
74												
75						**UCL Statistics**						
76				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
77					Shapiro Wilk Test Statistic	0.796				Shapiro Wilk Test Statistic		0.924
78					5% Shapiro Wilk Critical Value	0.892				5% Shapiro Wilk Critical Value		0.892
79				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
80												
81				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
82					DL/2 Substitution Method					DL/2 Substitution Method		
83					Mean	0.186				Mean		-1.753
84					SD	0.0828				SD		0.37
85					95% DL/2 (t) UCL	0.218				95% H-Stat (DL/2) UCL		0.237
86												
87					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
88				**MLE method failed to converge properly**						Mean in Log Scale		-1.767
89										SD in Log Scale		0.373
90										Mean in Original Scale		0.184
91										SD in Original Scale		0.0835
92										95% Percentile Bootstrap UCL		0.215
93										95% BCA Bootstrap UCL		0.222
94												
95				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
96					k star (bias corrected)	5.048				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
97					Theta Star	0.0372						
98					nu star	171.6						
99												
100					A-D Test Statistic	0.798				**Nonparametric Statistics**		
101					5% A-D Critical Value	0.741				Kaplan-Meier (KM) Method		
102					K-S Test Statistic	0.741				Mean		0.184
103					5% K-S Critical Value	0.21				SD		0.0834
104				**Data follow Appr. Gamma Distribution at 5% Significance Level**						SE of Mean		0.0198
105										95% KM (t) UCL		0.218
106				**Assuming Gamma Distribution**						95% KM (z) UCL		0.217

	A	B	C	D	E	F	G	H	I	J	K	L
107					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.218
108					Minimum	0.096					95% KM (bootstrap t) UCL	0.236
109					Maximum	0.44					95% KM (BCA) UCL	0.218
110					Mean	0.189					95% KM (Percentile Bootstrap) UCL	0.215
111					Median	0.175					95% KM (Chebyshev) UCL	0.271
112					SD	0.083					97.5% KM (Chebyshev) UCL	0.308
113					k star	6.018					99% KM (Chebyshev) UCL	0.382
114					Theta star	0.0314						
115					Nu star	240.7				**Potential UCLs to Use**		
116					AppChi2	205.8					95% KM (BCA) UCL	0.218
117					95% Gamma Approximate UCL	0.221						
118					95% Adjusted Gamma UCL	0.224						
119	**Note: DL/2 is not a recommended method.**											
120												
121												
122	**Dibenzofuran**											
123												
124					**General Statistics**							
125					Number of Valid Data	20					Number of Detected Data	12
126					Number of Distinct Detected Data	10					Number of Non-Detect Data	8
127											Percent Non-Detects	40.00%
128												
129					**Raw Statistics**					**Log-transformed Statistics**		
130					Minimum Detected	0.045					Minimum Detected	-3.101
131					Maximum Detected	0.39					Maximum Detected	-0.942
132					Mean of Detected	0.101					Mean of Detected	-2.508
133					SD of Detected	0.0944					SD of Detected	0.595
134					Minimum Non-Detect	0.34					Minimum Non-Detect	-1.079
135					Maximum Non-Detect	0.83					Maximum Non-Detect	-0.186
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
138	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
139	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
140												
141					**UCL Statistics**							
142					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
143					Shapiro Wilk Test Statistic	0.569					Shapiro Wilk Test Statistic	0.833
144					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
145					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
146												
147					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
148					DL/2 Substitution Method						DL/2 Substitution Method	
149					Mean	0.158					Mean	-2.088
150					SD	0.112					SD	0.718
151					95% DL/2 (t) UCL	0.201					95% H-Stat (DL/2) UCL	0.336
152												
153					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
154					**MLE method failed to converge properly**						Mean in Log Scale	-2.528
155											SD in Log Scale	0.46
156											Mean in Original Scale	0.0918
157											SD in Original Scale	0.073
158											95% Percentile Bootstrap UCL	0.121
159											95% BCA Bootstrap UCL	0.138

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
162					k star (bias corrected)	1.917	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
163					Theta Star	0.0526						
164					nu star	46.02						
165												
166					A-D Test Statistic	1.098			**Nonparametric Statistics**			
167					5% A-D Critical Value	0.74				Kaplan-Meier (KM) Method		
168					K-S Test Statistic	0.74				Mean		0.0957
169					5% K-S Critical Value	0.248				SD		0.0823
170	**Data follow Appr. Gamma Distribution at 5% Significance Level**									SE of Mean		0.0225
171										95% KM (t) UCL		0.134
172			**Assuming Gamma Distribution**							95% KM (z) UCL		0.133
173				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.135
174					Minimum	0.045				95% KM (bootstrap t) UCL		0.196
175					Maximum	0.39				95% KM (BCA) UCL		0.138
176					Mean	0.102				95% KM (Percentile Bootstrap) UCL		0.135
177					Median	0.0994				95% KM (Chebyshev) UCL		0.194
178					SD	0.0719				97.5% KM (Chebyshev) UCL		0.236
179					k star	3.461				99% KM (Chebyshev) UCL		0.319
180					Theta star	0.0294						
181					Nu star	138.5			**Potential UCLs to Use**			
182					AppChi2	112.3				95% KM (t) UCL		0.134
183					95% Gamma Approximate UCL	0.126						
184					95% Adjusted Gamma UCL	0.128						
185	**Note: DL/2 is not a recommended method.**											
186												
187												
188	**Dioxin TEQ**											
189												
190					**General Statistics**							
191					Number of Valid Observations	3				Number of Distinct Observations		3
192												
193												
194					**Warning: This data set only has 3 observations!**							
195					**Data set is too small to compute reliable and meaningful statistics and estimates!**							
196					**The data set for variable Dioxin TEQ was not processed!**							
197												
198					**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
199					**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
200												
201												
202												
203	**Cobalt**											
204												
205					**General Statistics**							
206					Number of Valid Data	20				Number of Detected Data		2
207					Number of Distinct Detected Data	1				Number of Non-Detect Data		18
208										Percent Non-Detects		90.00%
209												
210					**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**							
211	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	**The data set for variable Cobalt was not processed!**											
214												
215												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Leachate.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	4,4'-DDD											
10												
11						General Statistics						
12						Number of Valid Data	22		Number of Detected Data			1
13						Number of Distinct Detected Data	1		Number of Non-Detect Data			21
14									Percent Non-Detects			95.45%
15												
16				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
17				It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).								
18												
19				The data set for variable 4,4'-DDD was not processed!								
20												
21												
22												
23	4,4'-DDE											
24												
25						General Statistics						
26						Number of Valid Data	23		Number of Detected Data			2
27						Number of Distinct Detected Data	2		Number of Non-Detect Data			21
28									Percent Non-Detects			91.30%
29												
30						Raw Statistics			Log-transformed Statistics			
31						Minimum Detected	0.0038		Minimum Detected			-5.573
32						Maximum Detected	0.0056		Maximum Detected			-5.185
33						Mean of Detected	0.0047		Mean of Detected			-5.379
34						SD of Detected	0.00127		SD of Detected			0.274
35						Minimum Non-Detect	0.005		Minimum Non-Detect			-5.298
36						Maximum Non-Detect	0.01		Maximum Non-Detect			-4.605
37												
38				Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect			23
39				For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected			0
40				Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage			100.00%
41												
42				Warning: Data set has only 2 Distinct Detected Values.								
43				This may not be adequate enough to compute meaningful and reliable test statistics and estimates.								
44				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
45												
46				Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.								
47												
48				The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.								
49				Those methods will return a 'N/A' value on your output display!								
50												
51				It is necessary to have 4 or more Distinct Values for bootstrap methods.								
52				It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.								
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	**UCL Statistics**											
56	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
57					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic		1
58					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
59	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
60												
61	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
62					DL/2 Substitution Method					DL/2 Substitution Method		
63					Mean	0.00283				Mean		-5.898
64					SD	0.0008335				SD		0.227
65					95% DL/2 (t) UCL	0.00312				95% H-Stat (DL/2) UCL		0.00304
66												
67					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
68	**MLE method failed to converge properly**									Mean in Log Scale		N/A
69										SD in Log Scale		N/A
70										Mean in Original Scale		N/A
71										SD in Original Scale		N/A
72										95% Percentile Bootstrap UCL		N/A
73										95% BCA Bootstrap UCL		N/A
74												
75	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
76					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
77					Theta Star	N/A						
78					nu star	N/A						
79												
80					A-D Test Statistic	0.359	**Nonparametric Statistics**					
81					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
82					K-S Test Statistic	N/A				Mean		0.00388
83					5% K-S Critical Value	N/A				SD		0.0003749
84	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0001131
85										95% KM (t) UCL		0.00408
86	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00407
87					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00507
88					Minimum	N/A				95% KM (bootstrap t) UCL		0.00389
89					Maximum	N/A				95% KM (BCA) UCL		0.0056
90					Mean	N/A				95% KM (Percentile Bootstrap) UCL		0.0056
91					Median	N/A				95% KM (Chebyshev) UCL		0.00437
92					SD	N/A				97.5% KM (Chebyshev) UCL		0.00459
93					k star	N/A				99% KM (Chebyshev) UCL		0.00501
94					Theta star	N/A						
95					Nu star	N/A	**Potential UCLs to Use**					
96					AppChi2	N/A				95% KM (t) UCL		0.00408
97					95% Gamma Approximate UCL	N/A				95% KM (% Bootstrap) UCL		0.0056
98					95% Adjusted Gamma UCL	N/A						
99	**Note: DL/2 is not a recommended method.**											
100												
101												
102	**4,4'-DDT**											
103												
104	**General Statistics**											
105					Number of Valid Data	23				Number of Detected Data		0
106					Number of Distinct Detected Data	0				Number of Non-Detect Data		23

	A	B	C	D	E	F	G	H	I	J	K	L
107										Percent Non-Detects		100.00%
108												
109	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
110	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
111	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
112												
113	The data set for variable 4,4'-DDT was not processed!											
114												
115												
116												
117	alpha-Chlordane											
118												
119	General Statistics											
120					Number of Valid Data	23				Number of Detected Data		0
121					Number of Distinct Detected Data	0				Number of Non-Detect Data		23
122										Percent Non-Detects		100.00%
123												
124	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
125	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
126	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
127												
128	The data set for variable alpha-Chlordane was not processed!											
129												
130												
131												
132	Aroclor-1254											
133												
134	General Statistics											
135					Number of Valid Data	23				Number of Detected Data		0
136					Number of Distinct Detected Data	0				Number of Non-Detect Data		23
137										Percent Non-Detects		100.00%
138												
139	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
140	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
141	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
142												
143	The data set for variable Aroclor-1254 was not processed!											
144												
145												
146												
147	Aroclor-1260											
148												
149	General Statistics											
150					Number of Valid Data	23				Number of Detected Data		0
151					Number of Distinct Detected Data	0				Number of Non-Detect Data		23
152										Percent Non-Detects		100.00%
153												
154	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
155	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
156	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
157												
158	The data set for variable Aroclor-1260 was not processed!											
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161												
162	Chrysene											
163												
164						General Statistics						
165					Number of Valid Data	23				Number of Detected Data		0
166					Number of Distinct Detected Data	0				Number of Non-Detect Data		23
167										Percent Non-Detects		100.00%
168												
169					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
170					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
171					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
172												
173					The data set for variable Chrysene was not processed!							
174												
175												
176												
177	Ethylbenzene											
178												
179						General Statistics						
180					Number of Valid Data	23				Number of Detected Data		2
181					Number of Distinct Detected Data	2				Number of Non-Detect Data		21
182										Percent Non-Detects		91.30%
183												
184					Raw Statistics					Log-transformed Statistics		
185					Minimum Detected	1				Minimum Detected		0
186					Maximum Detected	1.4				Maximum Detected		0.336
187					Mean of Detected	1.2				Mean of Detected		0.168
188					SD of Detected	0.283				SD of Detected		0.238
189					Minimum Non-Detect	0.5				Minimum Non-Detect		-0.693
190					Maximum Non-Detect	0.5				Maximum Non-Detect		-0.693
191												
192												
193					Warning: Data set has only 2 Distinct Detected Values.							
194					This may not be adequate enough to compute meaningful and reliable test statistics and estimates.							
195					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
196												
197					Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.							
198												
199					The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.							
200					Those methods will return a 'N/A' value on your output display!							
201												
202					It is necessary to have 4 or more Distinct Values for bootstrap methods.							
203					It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.							
204												
205												
206						UCL Statistics						
207					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
208					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic		1
209					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
210					Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level		
211												
212					Assuming Normal Distribution					Assuming Lognormal Distribution		

	A	B	C	D	E	F	G	H	I	J	K	L
213					DL/2 Substitution Method						DL/2 Substitution Method	
214					Mean	0.333					Mean	-1.251
215					SD	0.28					SD	0.451
216					95% DL/2 (t) UCL	0.433					95% H-Stat (DL/2) UCL	0.338
217												
218					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
219					**MLE method failed to converge properly**						Mean in Log Scale	N/A
220											SD in Log Scale	N/A
221											Mean in Original Scale	N/A
222											SD in Original Scale	N/A
223											95% Percentile Bootstrap UCL	N/A
224											95% BCA Bootstrap UCL	N/A
225												
226					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
227					k star (bias corrected)	N/A					**Data do not follow a Discernable Distribution (0.05)**	
228					Theta Star	N/A						
229					nu star	N/A						
230												
231					A-D Test Statistic	0.359					**Nonparametric Statistics**	
232					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
233					K-S Test Statistic	N/A					Mean	1.017
234					5% K-S Critical Value	N/A					SD	0.0816
235					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0241
236											95% KM (t) UCL	1.059
237					**Assuming Gamma Distribution**						95% KM (z) UCL	1.057
238					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	N/A
239					Minimum	N/A					95% KM (bootstrap t) UCL	N/A
240					Maximum	N/A					95% KM (BCA) UCL	N/A
241					Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A
242					Median	N/A					95% KM (Chebyshev) UCL	1.122
243					SD	N/A					97.5% KM (Chebyshev) UCL	1.168
244					k star	N/A					99% KM (Chebyshev) UCL	1.257
245					Theta star	N/A						
246					Nu star	N/A					**Potential UCLs to Use**	
247					AppChi2	N/A					95% KM (t) UCL	1.059
248					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	N/A
249					95% Adjusted Gamma UCL	N/A						
250	**Note: DL/2 is not a recommended method.**											
251												
252												
253	**Gamma-Chlordane**											
254												
255					**General Statistics**							
256					Number of Valid Data	23					Number of Detected Data	0
257					Number of Distinct Detected Data	0					Number of Non-Detect Data	23
258											Percent Non-Detects	100.00%
259												
260	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
261	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
262	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
263												
264	**The data set for variable Gamma-Chlordane was not processed!**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267												
268	**N-Nitrosodiphenylamine**											
269												
270						**General Statistics**						
271					Number of Valid Data	23				Number of Detected Data		11
272					Number of Distinct Detected Data	8				Number of Non-Detect Data		12
273										Percent Non-Detects		52.17%
274												
275				**Raw Statistics**						**Log-transformed Statistics**		
276					Minimum Detected	0.35				Minimum Detected		-1.05
277					Maximum Detected	4.7				Maximum Detected		1.548
278					Mean of Detected	2.25				Mean of Detected		0.596
279					SD of Detected	1.403				SD of Detected		0.75
280					Minimum Non-Detect	0.52				Minimum Non-Detect		-0.654
281					Maximum Non-Detect	5				Maximum Non-Detect		1.609
282												
283	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		23
284	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
285	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
286												
287						**UCL Statistics**						
288				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
289					Shapiro Wilk Test Statistic	0.919				Shapiro Wilk Test Statistic		0.929
290					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
291				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
292												
293				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
294					DL/2 Substitution Method					DL/2 Substitution Method		
295					Mean	1.993				Mean		0.379
296					SD	1.248				SD		0.944
297					95% DL/2 (t) UCL	2.44				95% H-Stat (DL/2) UCL		4.774
298												
299					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
300				**MLE method failed to converge properly**						Mean in Log Scale		0.217
301										SD in Log Scale		0.87
302										Mean in Original Scale		1.731
303										SD in Original Scale		1.381
304										95% Percentile Bootstrap UCL		2.218
305										95% BCA Bootstrap UCL		2.23
306												
307				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
308					k star (bias corrected)	1.864				**Data appear Normal at 5% Significance Level**		
309					Theta Star	1.207						
310					nu star	41.01						
311												
312					A-D Test Statistic	0.249				**Nonparametric Statistics**		
313					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
314					K-S Test Statistic	0.736				Mean		1.743
315					5% K-S Critical Value	0.258				SD		1.421
316				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.385
317										95% KM (t) UCL		2.404
318				**Assuming Gamma Distribution**						95% KM (z) UCL		2.376

	A	B	C	D	E	F	G	H	I	J	K	L
319					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.363
320					Minimum	0.298					95% KM (bootstrap t) UCL	2.529
321					Maximum	4.808					95% KM (BCA) UCL	2.608
322					Mean	2.267					95% KM (Percentile Bootstrap) UCL	2.45
323					Median	1.8					95% KM (Chebyshev) UCL	3.421
324					SD	1.433					97.5% KM (Chebyshev) UCL	4.146
325					k star	1.926					99% KM (Chebyshev) UCL	5.572
326					Theta star	1.177						
327					Nu star	88.59			**Potential UCLs to Use**			
328					AppChi2	67.89					95% KM (t) UCL	2.404
329					95% Gamma Approximate UCL	2.958					95% KM (Percentile Bootstrap) UCL	2.45
330					95% Adjusted Gamma UCL	3.016						
331	**Note: DL/2 is not a recommended method.**											
332												
333												
334	**Xylene (Total)**											
335												
336					**General Statistics**							
337					Number of Valid Data	23					Number of Detected Data	6
338					Number of Distinct Detected Data	6					Number of Non-Detect Data	17
339											Percent Non-Detects	73.91%
340												
341					**Raw Statistics**				**Log-transformed Statistics**			
342					Minimum Detected	0.2					Minimum Detected	-1.609
343					Maximum Detected	16.5					Maximum Detected	2.803
344					Mean of Detected	5.339					Mean of Detected	0.66
345					SD of Detected	6.581					SD of Detected	1.77
346					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
347					Maximum Non-Detect	1.5					Maximum Non-Detect	0.405
348												
349	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
350	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
351	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.96%
352												
353					**Warning: There are only 6 Detected Values in this data**							
354					**Note: It should be noted that even though bootstrap may be performed on this data set**							
355					**the resulting calculations may not be reliable enough tp draw conclusions**							
356												
357					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
358												
359												
360					**UCL Statistics**							
361					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
362					Shapiro Wilk Test Statistic	0.828					Shapiro Wilk Test Statistic	0.924
363					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
364					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
365												
366					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
367					DL/2 Substitution Method						DL/2 Substitution Method	
368					Mean	1.643					Mean	-0.709
369					SD	3.862					SD	1.241
370					95% DL/2 (t) UCL	3.026					95% H-Stat (DL/2) UCL	1.691
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
373				**MLE method failed to converge properly**							Mean in Log Scale	-1.544
374											SD in Log Scale	1.973
375											Mean in Original Scale	1.538
376											SD in Original Scale	3.899
377											95% Percentile Bootstrap UCL	2.941
378											95% BCA Bootstrap UCL	3.54
379												
380				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
381					k star (bias corrected)	0.415				**Data appear Normal at 5% Significance Level**		
382					Theta Star	12.87						
383					nu star	4.979						
384												
385					A-D Test Statistic	0.349				**Nonparametric Statistics**		
386					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
387					K-S Test Statistic	0.729					Mean	1.547
388					5% K-S Critical Value	0.346					SD	3.807
389				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.87
390											95% KM (t) UCL	3.04
391				**Assuming Gamma Distribution**							95% KM (z) UCL	2.978
392					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.784
393					Minimum	0.2					95% KM (bootstrap t) UCL	6.402
394					Maximum	16.5					95% KM (BCA) UCL	5.07
395					Mean	4.939					95% KM (Percentile Bootstrap) UCL	3.897
396					Median	4.875					95% KM (Chebyshev) UCL	5.338
397					SD	3.194					97.5% KM (Chebyshev) UCL	6.978
398					k star	1.754					99% KM (Chebyshev) UCL	10.2
399					Theta star	2.815						
400					Nu star	80.7				**Potential UCLs to Use**		
401					AppChi2	61					95% KM (t) UCL	3.04
402					95% Gamma Approximate UCL	6.534					95% KM (Percentile Bootstrap) UCL	3.897
403					95% Adjusted Gamma UCL	6.67						
404	**Note: DL/2 is not a recommended method.**											
405												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes GW to Air.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11						General Statistics						
12						Number of Valid Data	18			Number of Detected Data		5
13						Number of Distinct Detected Data	5			Number of Non-Detect Data		13
14										Percent Non-Detects		72.22%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.25			Minimum Detected		-1.386
18						Maximum Detected	8.4			Maximum Detected		2.128
19						Mean of Detected	2.272			Mean of Detected		0.0586
20						SD of Detected	3.445			SD of Detected		1.304
21						Minimum Non-Detect	0.5			Minimum Non-Detect		-0.693
22						Maximum Non-Detect	0.5			Maximum Non-Detect		-0.693
23												
24												
25						Warning: There are only 5 Detected Values in this data						
26						Note: It should be noted that even though bootstrap may be performed on this data set						
27						the resulting calculations may not be reliable enough tp draw conclusions						
28												
29						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
30												
31												
32						UCL Statistics						
33				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
34						Shapiro Wilk Test Statistic	0.654			Shapiro Wilk Test Statistic		0.933
35						5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value		0.762
36				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
37												
38				Assuming Normal Distribution						Assuming Lognormal Distribution		
39						DL/2 Substitution Method				DL/2 Substitution Method		
40						Mean	0.812			Mean		-0.985
41						SD	1.913			SD		0.919
42						95% DL/2 (t) UCL	1.596			95% H-Stat (DL/2) UCL		0.99
43												
44						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
45				MLE yields a negative mean						Mean in Log Scale		-1.353
46										SD in Log Scale		1.377
47										Mean in Original Scale		0.79
48										SD in Original Scale		1.926
49										95% Percentile Bootstrap UCL		1.655
50										95% BCA Bootstrap UCL		2.197
51												
52				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
53						k star (bias corrected)	0.446			Data appear Gamma Distributed at 5% Significance Level		

	A	B	C	D	E	F	G	H	I	J	K	L
54					Theta Star	5.096						
55					nu star	4.458						
56												
57					A-D Test Statistic	0.535				**Nonparametric Statistics**		
58					5% A-D Critical Value	0.697					Kaplan-Meier (KM) Method	
59					K-S Test Statistic	0.697					Mean	0.812
60					5% K-S Critical Value	0.366					SD	1.859
61			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.49
62											95% KM (t) UCL	1.664
63				**Assuming Gamma Distribution**							95% KM (z) UCL	1.618
64				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.489
65					Minimum	1E-09					95% KM (bootstrap t) UCL	4.556
66					Maximum	8.4					95% KM (BCA) UCL	2.206
67					Mean	1.679					95% KM (Percentile Bootstrap) UCL	1.924
68					Median	1.305					95% KM (Chebyshev) UCL	2.948
69					SD	1.891					97.5% KM (Chebyshev) UCL	3.872
70					k star	0.264					99% KM (Chebyshev) UCL	5.687
71					Theta star	6.363						
72					Nu star	9.498				**Potential UCLs to Use**		
73					AppChi2	3.63					95% KM (t) UCL	1.664
74					95% Gamma Approximate UCL	4.392						
75					95% Adjusted Gamma UCL	4.847						
76	**Note: DL/2 is not a recommended method.**											
77												
78												
79	**Ethylbenzene**											
80												
81					**General Statistics**							
82					Number of Valid Data	18					Number of Detected Data	1
83					Number of Distinct Detected Data	1					Number of Non-Detect Data	17
84											Percent Non-Detects	94.44%
85												
86	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
87	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
88												
89	**The data set for variable Ethylbenzene was not processed!**											
90												
91												
92												
93	**Naphthalene**											
94												
95					**General Statistics**							
96					Number of Valid Data	18					Number of Detected Data	2
97					Number of Distinct Detected Data	2					Number of Non-Detect Data	16
98											Percent Non-Detects	88.89%
99												
100				**Raw Statistics**						**Log-transformed Statistics**		
101					Minimum Detected	0.12					Minimum Detected	-2.12
102					Maximum Detected	14					Maximum Detected	2.639
103					Mean of Detected	7.06					Mean of Detected	0.259
104					SD of Detected	9.815					SD of Detected	3.365
105					Minimum Non-Detect	0.1					Minimum Non-Detect	-2.303
106					Maximum Non-Detect	11					Maximum Non-Detect	2.398

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
109	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
110	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.44%
111												
112	**Warning: Data set has only 2 Distinct Detected Values.**											
113	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
114	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
115												
116	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
117												
118	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
119	**Those methods will return a 'N/A' value on your output display!**											
120												
121	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
122	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
123												
124												
125	**UCL Statistics**											
126	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
127	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
128	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
129	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
130												
131	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
132	DL/2 Substitution Method						DL/2 Substitution Method					
133	Mean					3.359	Mean					-0.321
134	SD					3.665	SD					2.381
135	95% DL/2 (t) UCL					4.862	95% H-Stat (DL/2) UCL					215.9
136												
137	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
138	**MLE method failed to converge properly**						Mean in Log Scale					N/A
139							SD in Log Scale					N/A
140							Mean in Original Scale					N/A
141							SD in Original Scale					N/A
142							95% Percentile Bootstrap UCL					N/A
143							95% BCA Bootstrap UCL					N/A
144												
145	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
146	k star (bias corrected)					N/A	**Data do not follow a Discernable Distribution (0.05)**					
147	Theta Star					N/A						
148	nu star					N/A						
149												
150	A-D Test Statistic					0.357	**Nonparametric Statistics**					
151	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
152	K-S Test Statistic					N/A	Mean					0.891
153	5% K-S Critical Value					N/A	SD					3.179
154	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					1.06
155							95% KM (t) UCL					2.735
156	**Assuming Gamma Distribution**						95% KM (z) UCL					2.634
157	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.14
158	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
159	Maximum					N/A	95% KM (BCA) UCL					14

	A	B	C	D	E	F	G	H	I	J	K	L
160					Mean	N/A				95% KM (Percentile Bootstrap) UCL		14
161					Median	N/A				95% KM (Chebyshev) UCL		5.511
162					SD	N/A				97.5% KM (Chebyshev) UCL		7.51
163					k star	N/A				99% KM (Chebyshev) UCL		11.44
164					Theta star	N/A						
165					Nu star	N/A			**Potential UCLs to Use**			
166					AppChi2	N/A				99% KM (Chebyshev) UCL		11.44
167				95% Gamma Approximate UCL		N/A						
168				95% Adjusted Gamma UCL		N/A						
169	**Note: DL/2 is not a recommended method.**											
170												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Data	20			Number of Detected Data		19
13						Number of Distinct Detected Data	19			Number of Non-Detect Data		1
14										Percent Non-Detects		5.00%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.12			Minimum Detected		-2.12
18						Maximum Detected	3			Maximum Detected		1.099
19						Mean of Detected	0.877			Mean of Detected		-0.45
20						SD of Detected	0.742			SD of Detected		0.857
21						Minimum Non-Detect	0.14			Minimum Non-Detect		-1.966
22						Maximum Non-Detect	0.14			Maximum Non-Detect		-1.966
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.813			Shapiro Wilk Test Statistic		0.967
28						5% Shapiro Wilk Critical Value	0.901			5% Shapiro Wilk Critical Value		0.901
29				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	0.837			Mean		-0.56
34						SD	0.745			SD		0.97
35						95% DL/2 (t) UCL	1.124			95% H-Stat (DL/2) UCL		1.364
36												
37						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
38						Mean	0.771			Mean in Log Scale		-0.523
39						SD	0.818			SD in Log Scale		0.896
40						95% MLE (t) UCL	1.087			Mean in Original Scale		0.84
41						95% MLE (Tiku) UCL	1.085			SD in Original Scale		0.741
42										95% Percentile Bootstrap UCL		1.118
43										95% BCA Bootstrap UCL		1.161
44												
45				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
46						k star (bias corrected)	1.483			Data appear Gamma Distributed at 5% Significance Level		
47						Theta Star	0.591					
48						nu star	56.35					
49												
50						A-D Test Statistic	0.268			Nonparametric Statistics		
51						5% A-D Critical Value	0.755			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	0.755			Mean		0.839
53						5% K-S Critical Value	0.202			SD		0.723

	A	B	C	D	E	F	G	H	I	J	K	L
54	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.166
55											95% KM (t) UCL	1.126
56	**Assuming Gamma Distribution**										95% KM (z) UCL	1.112
57				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.126
58					Minimum	1E-09					95% KM (bootstrap t) UCL	1.319
59					Maximum	3					95% KM (BCA) UCL	1.12
60					Mean	0.833					95% KM (Percentile Bootstrap) UCL	1.124
61					Median	0.7					95% KM (Chebyshev) UCL	1.563
62					SD	0.749					97.5% KM (Chebyshev) UCL	1.876
63					k star	0.455					99% KM (Chebyshev) UCL	2.492
64					Theta star	1.829						
65					Nu star	18.22	**Potential UCLs to Use**					
66					AppChi2	9.547					95% KM (Chebyshev) UCL	1.563
67					95% Gamma Approximate UCL	1.589						
68					95% Adjusted Gamma UCL	1.676						
69	**Note: DL/2 is not a recommended method.**											
70												
71												
72	**Carbazole**											
73												
74					**General Statistics**							
75					Number of Valid Data	20					Number of Detected Data	16
76					Number of Distinct Detected Data	14					Number of Non-Detect Data	4
77											Percent Non-Detects	20.00%
78												
79				**Raw Statistics**						**Log-transformed Statistics**		
80					Minimum Detected	0.046					Minimum Detected	-3.079
81					Maximum Detected	1.6					Maximum Detected	0.47
82					Mean of Detected	0.355					Mean of Detected	-1.358
83					SD of Detected	0.366					SD of Detected	0.809
84					Minimum Non-Detect	0.14					Minimum Non-Detect	-1.966
85					Maximum Non-Detect	0.35					Maximum Non-Detect	-1.05
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
88	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
89	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	75.00%
90												
91					**UCL Statistics**							
92				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
93					Shapiro Wilk Test Statistic	0.637					Shapiro Wilk Test Statistic	0.946
94					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
95				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
96												
97				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
98					DL/2 Substitution Method						DL/2 Substitution Method	
99					Mean	0.303					Mean	-1.569
100					SD	0.342					SD	0.858
101					95% DL/2 (t) UCL	0.436					95% H-Stat (DL/2) UCL	0.35
102												
103					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
104					**MLE yields a negative mean**						Mean in Log Scale	-1.551
105											SD in Log Scale	0.832
106											Mean in Original Scale	0.304

	A	B	C	D	E	F	G	H	I	J	K	L
107											SD in Original Scale	0.341
108											95% Percentile Bootstrap UCL	0.443
109											95% BCA Bootstrap UCL	0.508
110												
111				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
112					k star (bias corrected)	1.424			**Data appear Gamma Distributed at 5% Significance Level**			
113					Theta Star	0.249						
114					nu star	45.57						
115												
116					A-D Test Statistic	0.737			**Nonparametric Statistics**			
117					5% A-D Critical Value	0.753					Kaplan-Meier (KM) Method	
118					K-S Test Statistic	0.753					Mean	0.305
119					5% K-S Critical Value	0.218					SD	0.333
120				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0772
121											95% KM (t) UCL	0.439
122				**Assuming Gamma Distribution**							95% KM (z) UCL	0.432
123					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.438
124					Minimum	0.043					95% KM (bootstrap t) UCL	0.597
125					Maximum	1.6					95% KM (BCA) UCL	0.443
126					Mean	0.318					95% KM (Percentile Bootstrap) UCL	0.449
127					Median	0.255					95% KM (Chebyshev) UCL	0.642
128					SD	0.338					97.5% KM (Chebyshev) UCL	0.787
129					k star	1.386					99% KM (Chebyshev) UCL	1.073
130					Theta star	0.229						
131					Nu star	55.42			**Potential UCLs to Use**			
132					AppChi2	39.32					95% KM (BCA) UCL	0.443
133					95% Gamma Approximate UCL	0.448						
134					95% Adjusted Gamma UCL	0.46						
135	**Note: DL/2 is not a recommended method.**											
136												
137												
138	**Dibenzofuran**											
139												
140						**General Statistics**						
141					Number of Valid Data	20					Number of Detected Data	14
142					Number of Distinct Detected Data	13					Number of Non-Detect Data	6
143											Percent Non-Detects	30.00%
144												
145				**Raw Statistics**					**Log-transformed Statistics**			
146					Minimum Detected	0.045					Minimum Detected	-3.101
147					Maximum Detected	0.76					Maximum Detected	-0.274
148					Mean of Detected	0.168					Mean of Detected	-2.163
149					SD of Detected	0.204					SD of Detected	0.78
150					Minimum Non-Detect	0.14					Minimum Non-Detect	-1.966
151					Maximum Non-Detect	0.41					Maximum Non-Detect	-0.892
152												
153	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	18
154	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
155	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	90.00%
156												
157						**UCL Statistics**						
158				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
159					Shapiro Wilk Test Statistic	0.571					Shapiro Wilk Test Statistic	0.805

	A	B	C	D	E	F	G	H	I	J	K	L
160					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
161	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
162												
163	Assuming Normal Distribution						Assuming Lognormal Distribution					
164					DL/2 Substitution Method						DL/2 Substitution Method	
165					Mean	0.157					Mean	-2.158
166					SD	0.173					SD	0.702
167					95% DL/2 (t) UCL	0.224					95% H-Stat (DL/2) UCL	0.222
168												
169					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
170	MLE method failed to converge properly										Mean in Log Scale	-2.226
171											SD in Log Scale	0.659
172											Mean in Original Scale	0.146
173											SD in Original Scale	0.173
174											95% Percentile Bootstrap UCL	0.213
175											95% BCA Bootstrap UCL	0.234
176												
177	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
178					k star (bias corrected)	1.191	Data do not follow a Discernable Distribution (0.05)					
179					Theta Star	0.141						
180					nu star	33.34						
181												
182					A-D Test Statistic	1.825	Nonparametric Statistics					
183					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
184					K-S Test Statistic	0.751					Mean	0.144
185					5% K-S Critical Value	0.233					SD	0.169
186	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.0394
187											95% KM (t) UCL	0.212
188	Assuming Gamma Distribution										95% KM (z) UCL	0.209
189					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.212
190					Minimum	0.045					95% KM (bootstrap t) UCL	0.438
191					Maximum	0.76					95% KM (BCA) UCL	0.216
192					Mean	0.169					95% KM (Percentile Bootstrap) UCL	0.213
193					Median	0.114					95% KM (Chebyshev) UCL	0.316
194					SD	0.169					97.5% KM (Chebyshev) UCL	0.39
195					k star	1.746					99% KM (Chebyshev) UCL	0.537
196					Theta star	0.097						
197					Nu star	69.84	Potential UCLs to Use					
198					AppChi2	51.6					95% KM (BCA) UCL	0.216
199					95% Gamma Approximate UCL	0.229						
200					95% Adjusted Gamma UCL	0.235						
201	Note: DL/2 is not a recommended method.											
202												
203												
204	Dioxin TEQ											
205												
206	General Statistics											
207					Number of Valid Observations	2					Number of Distinct Observations	2
208												
209												
210	Warning: This data set only has 2 observations!											
211	Data set is too small to compute reliable and meaningful statistics and estimates!											
212	The data set for variable Dioxin TEQ was not processed!											

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
215	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
216												
217												
218												
219	Cobalt											
220												
221	General Statistics											
222					Number of Valid Data	20				Number of Detected Data		9
223					Number of Distinct Detected Data	8				Number of Non-Detect Data		11
224										Percent Non-Detects		55.00%
225												
226	Raw Statistics						Log-transformed Statistics					
227					Minimum Detected	2.7				Minimum Detected		0.993
228					Maximum Detected	19.3				Maximum Detected		2.96
229					Mean of Detected	10.9				Mean of Detected		2.224
230					SD of Detected	5.659				SD of Detected		0.667
231					Minimum Non-Detect	11				Minimum Non-Detect		2.398
232					Maximum Non-Detect	14				Maximum Non-Detect		2.639
233												
234	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		18
235	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
236	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		90.00%
237												
238	Warning: There are only 9 Detected Values in this data											
239	Note: It should be noted that even though bootstrap may be performed on this data set											
240	the resulting calculations may not be reliable enough tp draw conclusions											
241												
242	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
243												
244												
245	UCL Statistics											
246	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
247					Shapiro Wilk Test Statistic	0.961				Shapiro Wilk Test Statistic		0.902
248					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
249	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
250												
251	Assuming Normal Distribution						Assuming Lognormal Distribution					
252					DL/2 Substitution Method					DL/2 Substitution Method		
253					Mean	8.113				Mean		1.969
254					SD	4.508				SD		0.497
255					95% DL/2 (t) UCL	9.855				95% H-Stat (DL/2) UCL		10.9
256												
257					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
258	MLE method failed to converge properly									Mean in Log Scale		1.977
259										SD in Log Scale		0.54
260										Mean in Original Scale		8.284
261										SD in Original Scale		4.592
262										95% Percentile Bootstrap UCL		9.981
263										95% BCA Bootstrap UCL		10.3
264												
265	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
266					k star (bias corrected)	2.207		**Data appear Normal at 5% Significance Level**				
267					Theta Star	4.939						
268					nu star	39.73						
269												
270					A-D Test Statistic	0.337			**Nonparametric Statistics**			
271					5% A-D Critical Value	0.726					Kaplan-Meier (KM) Method	
272					K-S Test Statistic	0.726					Mean	8.801
273					5% K-S Critical Value	0.281					SD	4.764
274	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	1.534
275											95% KM (t) UCL	11.45
276			**Assuming Gamma Distribution**								95% KM (z) UCL	11.32
277			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	11.66
278					Minimum	2.7					95% KM (bootstrap t) UCL	11.63
279					Maximum	19.3					95% KM (BCA) UCL	11.43
280					Mean	11.12					95% KM (Percentile Bootstrap) UCL	11.51
281					Median	11.34					95% KM (Chebyshev) UCL	15.49
282					SD	3.729					97.5% KM (Chebyshev) UCL	18.38
283					k star	5.795					99% KM (Chebyshev) UCL	24.06
284					Theta star	1.918						
285					Nu star	231.8			**Potential UCLs to Use**			
286					AppChi2	197.6					95% KM (t) UCL	11.45
287					95% Gamma Approximate UCL	13.04					95% KM (Percentile Bootstrap) UCL	11.51
288					95% Adjusted Gamma UCL	13.21						
289	**Note: DL/2 is not a recommended method.**											
290												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS+Sub to Air.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,1'-Biphenyl											
10												
11						General Statistics						
12						Number of Valid Data	37			Number of Detected Data		6
13						Number of Distinct Detected Data	5			Number of Non-Detect Data		31
14										Percent Non-Detects		83.78%
15												
16						Raw Statistics				Log-transformed Statistics		
17						Minimum Detected	0.04			Minimum Detected		-3.219
18						Maximum Detected	0.12			Maximum Detected		-2.12
19						Mean of Detected	0.0845			Mean of Detected		-2.561
20						SD of Detected	0.0365			SD of Detected		0.481
21						Minimum Non-Detect	0.14			Minimum Non-Detect		-1.966
22						Maximum Non-Detect	4.2			Maximum Non-Detect		1.435
23												
24						Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect		37
25						For all methods (except KM, DL/2, and ROS Methods),				Number treated as Detected		0
26						Observations < Largest ND are treated as NDs				Single DL Non-Detect Percentage		100.00%
27												
28						Warning: There are only 6 Detected Values in this data						
29						Note: It should be noted that even though bootstrap may be performed on this data set						
30						the resulting calculations may not be reliable enough tp draw conclusions						
31												
32						It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.						
33												
34												
35						UCL Statistics						
36						Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only		
37						Shapiro Wilk Test Statistic	0.843			Shapiro Wilk Test Statistic		0.858
38						5% Shapiro Wilk Critical Value	0.788			5% Shapiro Wilk Critical Value		0.788
39						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
40												
41						Assuming Normal Distribution				Assuming Lognormal Distribution		
42						DL/2 Substitution Method				DL/2 Substitution Method		
43						Mean	0.194			Mean		-2.013
44						SD	0.329			SD		0.708
45						95% DL/2 (t) UCL	0.285			95% H-Stat (DL/2) UCL		0.289
46												
47						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
48						MLE method failed to converge properly				Mean in Log Scale		-2.561
49										SD in Log Scale		0.318
50										Mean in Original Scale		0.0811
51										SD in Original Scale		0.0253
52										95% Percentile Bootstrap UCL		0.088
53										95% BCA Bootstrap UCL		0.0879

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
56					k star (bias corrected)	2.972	**Data appear Normal at 5% Significance Level**					
57					Theta Star	0.0284						
58					nu star	35.67						
59												
60					A-D Test Statistic	0.51	**Nonparametric Statistics**					
61					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
62					K-S Test Statistic	0.698				Mean		0.0845
63					5% K-S Critical Value	0.333				SD		0.0333
64	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.0149
65										95% KM (t) UCL		0.11
66	**Assuming Gamma Distribution**									95% KM (z) UCL		0.109
67				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.112
68					Minimum	0.0371				95% KM (bootstrap t) UCL		0.111
69					Maximum	0.123				95% KM (BCA) UCL		0.11
70					Mean	0.0866				95% KM (Percentile Bootstrap) UCL		0.109
71					Median	0.0894				95% KM (Chebyshev) UCL		0.149
72					SD	0.0246				97.5% KM (Chebyshev) UCL		0.177
73					k star	9.923				99% KM (Chebyshev) UCL		0.233
74					Theta star	0.00873						
75					Nu star	734.3	**Potential UCLs to Use**					
76					AppChi2	672.4				95% KM (t) UCL		0.11
77					95% Gamma Approximate UCL	0.0946				95% KM (Percentile Bootstrap) UCL		0.109
78					95% Adjusted Gamma UCL	0.0949						
79	**Note: DL/2 is not a recommended method.**											
80												
81												
82	**Acenaphthene**											
83												
84					**General Statistics**							
85					Number of Valid Data	37				Number of Detected Data		20
86					Number of Distinct Detected Data	15				Number of Non-Detect Data		17
87										Percent Non-Detects		45.95%
88												
89				**Raw Statistics**						**Log-transformed Statistics**		
90					Minimum Detected	0.068				Minimum Detected		-2.688
91					Maximum Detected	2.4				Maximum Detected		0.875
92					Mean of Detected	0.464				Mean of Detected		-1.354
93					SD of Detected	0.592				SD of Detected		1.04
94					Minimum Non-Detect	0.14				Minimum Non-Detect		-1.966
95					Maximum Non-Detect	4.2				Maximum Non-Detect		1.435
96												
97	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		37
98	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
99	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
100												
101					**UCL Statistics**							
102	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
103					Shapiro Wilk Test Statistic	0.674				Shapiro Wilk Test Statistic		0.86
104					5% Shapiro Wilk Critical Value	0.905				5% Shapiro Wilk Critical Value		0.905
105	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
108					DL/2 Substitution Method						DL/2 Substitution Method	
109					Mean	0.355					Mean	-1.709
110					SD	0.551					SD	1.027
111					95% DL/2 (t) UCL	0.508					95% H-Stat (DL/2) UCL	0.404
112												
113					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
114	**MLE method failed to converge properly**										Mean in Log Scale	-1.74
115											SD in Log Scale	0.908
116											Mean in Original Scale	0.306
117											SD in Original Scale	0.465
118											95% Percentile Bootstrap UCL	0.433
119											95% BCA Bootstrap UCL	0.498
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122					k star (bias corrected)	0.873	**Data do not follow a Discernable Distribution (0.05)**					
123					Theta Star	0.531						
124					nu star	34.92						
125												
126					A-D Test Statistic	1.784	**Nonparametric Statistics**					
127					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
128					K-S Test Statistic	0.769					Mean	0.31
129					5% K-S Critical Value	0.199					SD	0.464
130	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0794
131											95% KM (t) UCL	0.444
132	**Assuming Gamma Distribution**										95% KM (z) UCL	0.44
133					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.442
134					Minimum	0.068					95% KM (bootstrap t) UCL	0.551
135					Maximum	2.4					95% KM (BCA) UCL	0.456
136					Mean	0.469					95% KM (Percentile Bootstrap) UCL	0.451
137					Median	0.416					95% KM (Chebyshev) UCL	0.656
138					SD	0.435					97.5% KM (Chebyshev) UCL	0.806
139					k star	1.556					99% KM (Chebyshev) UCL	1.1
140					Theta star	0.302						
141					Nu star	115.1	**Potential UCLs to Use**					
142					AppChi2	91.37					97.5% KM (Chebyshev) UCL	0.806
143					95% Gamma Approximate UCL	0.591						
144					95% Adjusted Gamma UCL	0.597						
145	**Note: DL/2 is not a recommended method.**											
146												
147												
148	**Benzaldehyde**											
149												
150					**General Statistics**							
151					Number of Valid Data	37					Number of Detected Data	13
152					Number of Distinct Detected Data	11					Number of Non-Detect Data	24
153											Percent Non-Detects	64.86%
154												
155					**Raw Statistics**						**Log-transformed Statistics**	
156					Minimum Detected	0.04					Minimum Detected	-3.219
157					Maximum Detected	0.54					Maximum Detected	-0.616
158					Mean of Detected	0.109					Mean of Detected	-2.531
159					SD of Detected	0.133					SD of Detected	0.684

	A	B	C	D	E	F	G	H	I	J	K	L
160					Minimum Non-Detect	0.14					Minimum Non-Detect	-1.966
161					Maximum Non-Detect	4.2					Maximum Non-Detect	1.435
162												
163	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	37
164	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
165	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
166												
167					**UCL Statistics**							
168				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
169					Shapiro Wilk Test Statistic	0.502					Shapiro Wilk Test Statistic	0.811
170					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
171				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
172												
173				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
174					DL/2 Substitution Method						DL/2 Substitution Method	
175					Mean	0.185					Mean	-2.138
176					SD	0.337					SD	0.776
177					95% DL/2 (t) UCL	0.279					95% H-Stat (DL/2) UCL	0.305
178												
179					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
180				**MLE method failed to converge properly**							Mean in Log Scale	-2.629
181											SD in Log Scale	0.459
182											Mean in Original Scale	0.0843
183											SD in Original Scale	0.0804
184											95% Percentile Bootstrap UCL	0.11
185											95% BCA Bootstrap UCL	0.125
186												
187				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
188					k star (bias corrected)	1.393				**Data do not follow a Discernable Distribution (0.05)**		
189					Theta Star	0.0781						
190					nu star	36.23						
191												
192					A-D Test Statistic	1.468				**Nonparametric Statistics**		
193					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
194					K-S Test Statistic	0.747					Mean	0.0832
195					5% K-S Critical Value	0.24					SD	0.0814
196				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.0151
197											95% KM (t) UCL	0.109
198				**Assuming Gamma Distribution**							95% KM (z) UCL	0.108
199					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.108
200					Minimum	0.04					95% KM (bootstrap t) UCL	0.139
201					Maximum	0.54					95% KM (BCA) UCL	0.111
202					Mean	0.111					95% KM (Percentile Bootstrap) UCL	0.111
203					Median	0.111					95% KM (Chebyshev) UCL	0.149
204					SD	0.0773					97.5% KM (Chebyshev) UCL	0.177
205					k star	4.214					99% KM (Chebyshev) UCL	0.233
206					Theta star	0.0263						
207					Nu star	311.9				**Potential UCLs to Use**		
208					AppChi2	272					95% KM (t) UCL	0.109
209					95% Gamma Approximate UCL	0.127					95% KM (% Bootstrap) UCL	0.111
210					95% Adjusted Gamma UCL	0.128						
211	**Note: DL/2 is not a recommended method.**											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Ethylbenzene**											
215												
216						**General Statistics**						
217					Number of Valid Data	37				Number of Detected Data		1
218					Number of Distinct Detected Data	1				Number of Non-Detect Data		36
219										Percent Non-Detects		97.30%
220												
221					**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**							
222					**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**							
223												
224					**The data set for variable Ethylbenzene was not processed!**							
225												
226												
227												
228	**Methyl acetate**											
229												
230						**General Statistics**						
231					Number of Valid Data	37				Number of Detected Data		6
232					Number of Distinct Detected Data	5				Number of Non-Detect Data		31
233										Percent Non-Detects		83.78%
234												
235					**Raw Statistics**					**Log-transformed Statistics**		
236					Minimum Detected	0.005				Minimum Detected		-5.298
237					Maximum Detected	1.1				Maximum Detected		0.0953
238					Mean of Detected	0.19				Mean of Detected		-4.066
239					SD of Detected	0.446				SD of Detected		2.06
240					Minimum Non-Detect	0.0011				Minimum Non-Detect		-6.812
241					Maximum Non-Detect	0.11				Maximum Non-Detect		-2.207
242												
243					Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect		36
244					For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected		1
245					Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage		97.30%
246												
247					**Warning: There are only 6 Detected Values in this data**							
248					**Note: It should be noted that even though bootstrap may be performed on this data set**							
249					**the resulting calculations may not be reliable enough tp draw conclusions**							
250												
251					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
252												
253												
254						**UCL Statistics**						
255					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
256					Shapiro Wilk Test Statistic	0.501				Shapiro Wilk Test Statistic		0.632
257					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
258					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
259												
260					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
261					DL/2 Substitution Method					DL/2 Substitution Method		
262					Mean	0.0365				Mean		-5.525
263					SD	0.18				SD		1.513
264					95% DL/2 (t) UCL	0.0865				95% H-Stat (DL/2) UCL		0.0228
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
267				**MLE method failed to converge properly**							Mean in Log Scale	-7.872
268											SD in Log Scale	2.331
269											Mean in Original Scale	0.0313
270											SD in Original Scale	0.181
271											95% Percentile Bootstrap UCL	0.0905
272											95% BCA Bootstrap UCL	0.121
273												
274				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
275					k star (bias corrected)	0.255				**Data do not follow a Discernable Distribution (0.05)**		
276					Theta Star	0.743						
277					nu star	3.065						
278												
279					A-D Test Statistic	1.44				**Nonparametric Statistics**		
280					5% A-D Critical Value	0.771					Kaplan-Meier (KM) Method	
281					K-S Test Statistic	0.771					Mean	0.0352
282					5% K-S Critical Value	0.358					SD	0.177
283				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.032
284											95% KM (t) UCL	0.0892
285				**Assuming Gamma Distribution**							95% KM (z) UCL	0.0878
286					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0845
287					Minimum	1E-09					95% KM (bootstrap t) UCL	3.95
288					Maximum	13.59					95% KM (BCA) UCL	0.125
289					Mean	1.826					95% KM (Percentile Bootstrap) UCL	0.0947
290					Median	0.235					95% KM (Chebyshev) UCL	0.175
291					SD	3.265					97.5% KM (Chebyshev) UCL	0.235
292					k star	0.168					99% KM (Chebyshev) UCL	0.353
293					Theta star	10.89						
294					Nu star	12.41				**Potential UCLs to Use**		
295					AppChi2	5.498					99% KM (Chebyshev) UCL	0.353
296					95% Gamma Approximate UCL	4.121						
297					95% Adjusted Gamma UCL	4.276						
298	**Note: DL/2 is not a recommended method.**											
299												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS+Sub.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Data	35			Number of Detected Data		27
13						Number of Distinct Detected Data	25			Number of Non-Detect Data		8
14										Percent Non-Detects		22.86%
15												
16						Raw Statistics				Log-transformed Statistics		
17						Minimum Detected	0.093			Minimum Detected		-2.375
18						Maximum Detected	4.9			Maximum Detected		1.589
19						Mean of Detected	1.009			Mean of Detected		-0.468
20						SD of Detected	1.078			SD of Detected		1.034
21						Minimum Non-Detect	0.14			Minimum Non-Detect		-1.966
22						Maximum Non-Detect	4.2			Maximum Non-Detect		1.435
23												
24				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		34
25				For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected		1
26				Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		97.14%
27												
28						UCL Statistics						
29						Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.758			Shapiro Wilk Test Statistic		0.974
31						5% Shapiro Wilk Critical Value	0.923			5% Shapiro Wilk Critical Value		0.923
32						Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
33												
34						Assuming Normal Distribution				Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	0.853			Mean		-0.86
37						SD	1.038			SD		1.281
38						95% DL/2 (t) UCL	1.15			95% H-Stat (DL/2) UCL		1.179
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
41						MLE method failed to converge properly				Mean in Log Scale		-0.798
42										SD in Log Scale		1.12
43										Mean in Original Scale		0.817
44										SD in Original Scale		1.009
45										95% Percentile Bootstrap UCL		1.114
46										95% BCA Bootstrap UCL		1.169
47												
48						Gamma Distribution Test with Detected Values Only				Data Distribution Test with Detected Values Only		
49						k star (bias corrected)	1.079			Data appear Gamma Distributed at 5% Significance Level		
50						Theta Star	0.935					
51						nu star	58.29					
52												
53						A-D Test Statistic	0.348			Nonparametric Statistics		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	0.769					Mean	0.822
56					5% K-S Critical Value	0.172					SD	1.003
57				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	0.174
58											95% KM (t) UCL	1.116
59				Assuming Gamma Distribution							95% KM (z) UCL	1.108
60					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.115
61					Minimum	1E-09					95% KM (bootstrap t) UCL	1.242
62					Maximum	4.9					95% KM (BCA) UCL	1.106
63					Mean	0.851					95% KM (Percentile Bootstrap) UCL	1.119
64					Median	0.52					95% KM (Chebyshev) UCL	1.58
65					SD	1.008					97.5% KM (Chebyshev) UCL	1.908
66					k star	0.391					99% KM (Chebyshev) UCL	2.553
67					Theta star	2.175						
68					Nu star	27.38					Potential UCLs to Use	
69					AppChi2	16.45					95% KM (BCA) UCL	1.106
70					95% Gamma Approximate UCL	1.416						
71					95% Adjusted Gamma UCL	1.452						
72	Note: DL/2 is not a recommended method.											
73												
74												
75	Carbazole											
76												
77					General Statistics							
78					Number of Valid Data	35					Number of Detected Data	21
79					Number of Distinct Detected Data	18					Number of Non-Detect Data	14
80											Percent Non-Detects	40.00%
81												
82				Raw Statistics						Log-transformed Statistics		
83					Minimum Detected	0.046					Minimum Detected	-3.079
84					Maximum Detected	2					Maximum Detected	0.693
85					Mean of Detected	0.486					Mean of Detected	-1.161
86					SD of Detected	0.527					SD of Detected	0.942
87					Minimum Non-Detect	0.14					Minimum Non-Detect	-1.966
88					Maximum Non-Detect	4.2					Maximum Non-Detect	1.435
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	35
91	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
92	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
93												
94					UCL Statistics							
95				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
96					Shapiro Wilk Test Statistic	0.72					Shapiro Wilk Test Statistic	0.958
97					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
98				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
99												
100				Assuming Normal Distribution						Assuming Lognormal Distribution		
101					DL/2 Substitution Method						DL/2 Substitution Method	
102					Mean	0.386					Mean	-1.591
103					SD	0.539					SD	1.063
104					95% DL/2 (t) UCL	0.54					95% H-Stat (DL/2) UCL	0.408
105												
106					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	

	A	B	C	D	E	F	G	H	I	J	K	L
107	MLE method failed to converge properly										Mean in Log Scale	-1.71
108											SD in Log Scale	1.04
109											Mean in Original Scale	0.327
110											SD in Original Scale	0.451
111											95% Percentile Bootstrap UCL	0.461
112											95% BCA Bootstrap UCL	0.479
113												
114	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
115					k star (bias corrected)	1.126	Data appear Lognormal at 5% Significance Level					
116					Theta Star	0.432						
117					nu star	47.27						
118												
119					A-D Test Statistic	0.985	Nonparametric Statistics					
120					5% A-D Critical Value	0.763				Kaplan-Meier (KM) Method		
121					K-S Test Statistic	0.763				Mean		0.336
122					5% K-S Critical Value	0.194				SD		0.448
123	Data not Gamma Distributed at 5% Significance Level									SE of Mean		0.0791
124										95% KM (t) UCL		0.47
125	Assuming Gamma Distribution									95% KM (z) UCL		0.466
126				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.469
127					Minimum	1E-09				95% KM (bootstrap t) UCL		0.542
128					Maximum	2				95% KM (BCA) UCL		0.478
129					Mean	0.433				95% KM (Percentile Bootstrap) UCL		0.483
130					Median	0.274				95% KM (Chebyshev) UCL		0.681
131					SD	0.442				97.5% KM (Chebyshev) UCL		0.83
132					k star	0.433				99% KM (Chebyshev) UCL		1.124
133					Theta star	1						
134					Nu star	30.31	Potential UCLs to Use					
135					AppChi2	18.74				95% KM (t) UCL		0.47
136					95% Gamma Approximate UCL	0.7				95% KM (% Bootstrap) UCL		0.483
137					95% Adjusted Gamma UCL	0.717						
138	Note: DL/2 is not a recommended method.											
139												
140												
141	Chrysene											
142												
143					General Statistics							
144					Number of Valid Data	35				Number of Detected Data		31
145					Number of Distinct Detected Data	24				Number of Non-Detect Data		4
146										Percent Non-Detects		11.43%
147												
148	Raw Statistics						Log-transformed Statistics					
149					Minimum Detected	0.092				Minimum Detected		-2.386
150					Maximum Detected	18				Maximum Detected		2.89
151					Mean of Detected	2.282				Mean of Detected		0.121
152					SD of Detected	3.314				SD of Detected		1.283
153					Minimum Non-Detect	0.14				Minimum Non-Detect		-1.966
154					Maximum Non-Detect	0.17				Maximum Non-Detect		-1.772
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		7
157	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		28
158	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		20.00%
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	UCL Statistics											
161	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
162					Shapiro Wilk Test Statistic	0.587				Shapiro Wilk Test Statistic		0.962
163					5% Shapiro Wilk Critical Value	0.929				5% Shapiro Wilk Critical Value		0.929
164	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
165												
166	Assuming Normal Distribution						Assuming Lognormal Distribution					
167					DL/2 Substitution Method					DL/2 Substitution Method		
168					Mean	2.03				Mean		-0.189
169					SD	3.194				SD		1.49
170					95% DL/2 (t) UCL	2.943				95% H-Stat (DL/2) UCL		3.719
171												
172					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
173					Mean	1.55				Mean in Log Scale		-0.129
174					SD	3.67				SD in Log Scale		1.399
175					95% MLE (t) UCL	2.599				Mean in Original Scale		2.036
176					95% MLE (Tiku) UCL	2.584				SD in Original Scale		3.19
177										95% Percentile Bootstrap UCL		2.954
178										95% BCA Bootstrap UCL		3.47
179												
180	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
181					k star (bias corrected)	0.778	Data appear Gamma Distributed at 5% Significance Level					
182					Theta Star	2.933						
183					nu star	48.25						
184												
185					A-D Test Statistic	0.498	Nonparametric Statistics					
186					5% A-D Critical Value	0.783				Kaplan-Meier (KM) Method		
187					K-S Test Statistic	0.783				Mean		2.034
188					5% K-S Critical Value	0.163				SD		3.145
189	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		0.54
190										95% KM (t) UCL		2.948
191	Assuming Gamma Distribution									95% KM (z) UCL		2.923
192					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		2.946
193					Minimum	1E-09				95% KM (bootstrap t) UCL		3.789
194					Maximum	18				95% KM (BCA) UCL		3.046
195					Mean	2.021				95% KM (Percentile Bootstrap) UCL		3.032
196					Median	1				95% KM (Chebyshev) UCL		4.39
197					SD	3.199				97.5% KM (Chebyshev) UCL		5.409
198					k star	0.239				99% KM (Chebyshev) UCL		7.411
199					Theta star	8.445						
200					Nu star	16.76	Potential UCLs to Use					
201					AppChi2	8.498				95% KM (Chebyshev) UCL		4.39
202					95% Gamma Approximate UCL	3.986						
203					95% Adjusted Gamma UCL	4.121						
204	Note: DL/2 is not a recommended method.											
205												
206												
207	Dibenzofuran											
208												
209	General Statistics											
210					Number of Valid Data	35				Number of Detected Data		19
211					Number of Distinct Detected Data	17				Number of Non-Detect Data		16
212										Percent Non-Detects		45.71%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Raw Statistics**						**Log-transformed Statistics**					
215					Minimum Detected	0.045				Minimum Detected		-3.101
216					Maximum Detected	0.92				Maximum Detected		-0.0834
217					Mean of Detected	0.248				Mean of Detected		-1.915
218					SD of Detected	0.282				SD of Detected		0.982
219					Minimum Non-Detect	0.14				Minimum Non-Detect		-1.966
220					Maximum Non-Detect	4.2				Maximum Non-Detect		1.435
221												
222	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		35
223	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
224	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
225												
226	**UCL Statistics**											
227	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
228					Shapiro Wilk Test Statistic	0.692				Shapiro Wilk Test Statistic		0.828
229					5% Shapiro Wilk Critical Value	0.901				5% Shapiro Wilk Critical Value		0.901
230	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
231												
232	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
233					DL/2 Substitution Method					DL/2 Substitution Method		
234					Mean	0.24				Mean		-2.026
235					SD	0.391				SD		0.932
236					95% DL/2 (t) UCL	0.351				95% H-Stat (DL/2) UCL		0.289
237												
238					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
239	**MLE method failed to converge properly**									Mean in Log Scale		-2.109
240										SD in Log Scale		0.787
241										Mean in Original Scale		0.181
242										SD in Original Scale		0.219
243										95% Percentile Bootstrap UCL		0.244
244										95% BCA Bootstrap UCL		0.263
245												
246	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
247					k star (bias corrected)	0.962	**Data do not follow a Discernable Distribution (0.05)**					
248					Theta Star	0.257						
249					nu star	36.55						
250												
251					A-D Test Statistic	2.039	**Nonparametric Statistics**					
252					5% A-D Critical Value	0.767				Kaplan-Meier (KM) Method		
253					K-S Test Statistic	0.767				Mean		0.176
254					5% K-S Critical Value	0.204				SD		0.221
255	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0391
256										95% KM (t) UCL		0.242
257	**Assuming Gamma Distribution**									95% KM (z) UCL		0.241
258					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.242
259					Minimum	0.045				95% KM (bootstrap t) UCL		0.264
260					Maximum	0.92				95% KM (BCA) UCL		0.243
261					Mean	0.248				95% KM (Percentile Bootstrap) UCL		0.243
262					Median	0.241				95% KM (Chebyshev) UCL		0.347
263					SD	0.205				97.5% KM (Chebyshev) UCL		0.421
264					k star	1.775				99% KM (Chebyshev) UCL		0.566
265					Theta star	0.14						

	A	B	C	D	E	F	G	H	I	J	K	L
266					Nu star	124.3	Potential UCLs to Use					
267					AppChi2	99.52					95% KM (t) UCL	0.242
268					95% Gamma Approximate UCL	0.31					95% KM (% Bootstrap) UCL	0.243
269					95% Adjusted Gamma UCL	0.314						
270	Note: DL/2 is not a recommended method.											
271												
272												
273	Dioxin TEQ											
274												
275					General Statistics							
276					Number of Valid Observations	2					Number of Distinct Observations	2
277												
278												
279					Warning: This data set only has 2 observations!							
280					Data set is too small to compute reliable and meaningful statistics and estimates!							
281					The data set for variable Dioxin TEQ was not processed!							
282												
283					It is suggested to collect at least 8 to 10 observations before using these statistical methods!							
284					If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.							
285												
286												
287												
288	Cobalt											
289												
290					General Statistics							
291					Number of Valid Data	35					Number of Detected Data	19
292					Number of Distinct Detected Data	17					Number of Non-Detect Data	16
293											Percent Non-Detects	45.71%
294												
295					Raw Statistics		Log-transformed Statistics					
296					Minimum Detected	2.2					Minimum Detected	0.788
297					Maximum Detected	19.3					Maximum Detected	2.96
298					Mean of Detected	7.066					Mean of Detected	1.718
299					SD of Detected	5.339					SD of Detected	0.684
300					Minimum Non-Detect	11					Minimum Non-Detect	2.398
301					Maximum Non-Detect	14					Maximum Non-Detect	2.639
302												
303	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	33
304	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
305	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.29%
306												
307					UCL Statistics							
308					Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only					
309					Shapiro Wilk Test Statistic	0.796					Shapiro Wilk Test Statistic	0.89
310					5% Shapiro Wilk Critical Value	0.901					5% Shapiro Wilk Critical Value	0.901
311					Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level					
312												
313					Assuming Normal Distribution		Assuming Lognormal Distribution					
314					DL/2 Substitution Method						DL/2 Substitution Method	
315					Mean	6.511					Mean	1.739
316					SD	3.946					SD	0.501
317					95% DL/2 (t) UCL	7.639					95% H-Stat (DL/2) UCL	11.55
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
320				**MLE method failed to converge properly**							Mean in Log Scale	1.613
321											SD in Log Scale	0.568
322											Mean in Original Scale	5.991
323											SD in Original Scale	4.216
324											95% Percentile Bootstrap UCL	7.267
325											95% BCA Bootstrap UCL	7.395
326												
327				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
328					k star (bias corrected)	1.939				**Data do not follow a Discernable Distribution (0.05)**		
329					Theta Star	3.645						
330					nu star	73.66						
331												
332					A-D Test Statistic	1.211				**Nonparametric Statistics**		
333					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
334					K-S Test Statistic	0.751					Mean	6.032
335					5% K-S Critical Value	0.201					SD	4.377
336				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.877
337											95% KM (t) UCL	7.516
338				**Assuming Gamma Distribution**							95% KM (z) UCL	7.476
339					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	7.523
340					Minimum	2.2					95% KM (bootstrap t) UCL	7.86
341					Maximum	19.3					95% KM (BCA) UCL	7.589
342					Mean	7.093					95% KM (Percentile Bootstrap) UCL	7.516
343					Median	7.009					95% KM (Chebyshev) UCL	9.857
344					SD	3.887					97.5% KM (Chebyshev) UCL	11.51
345					k star	3.71					99% KM (Chebyshev) UCL	14.76
346					Theta star	1.912						
347					Nu star	259.7				**Potential UCLs to Use**		
348					AppChi2	223.4					95% KM (t) UCL	7.516
349					95% Gamma Approximate UCL	8.246					95% KM (% Bootstrap) UCL	7.516
350					95% Adjusted Gamma UCL	8.305						
351	**Note: DL/2 is not a recommended method.**											
352												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\OU2 FI.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11						General Statistics						
12						Number of Valid Data	48		Number of Detected Data			1
13						Number of Distinct Detected Data	1		Number of Non-Detect Data			47
14									Percent Non-Detects			97.92%
15												
16				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
17				It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).								
18												
19				The data set for variable 4-Chloro-3-methylphenol was not processed!								
20												
21												
22												
23	4-Nitrophenol											
24												
25						General Statistics						
26						Number of Valid Data	48		Number of Detected Data			1
27						Number of Distinct Detected Data	1		Number of Non-Detect Data			47
28									Percent Non-Detects			97.92%
29												
30				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
31				It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).								
32												
33				The data set for variable 4-Nitrophenol was not processed!								
34												
35												
36												
37	Aldrin											
38												
39						General Statistics						
40						Number of Valid Data	48		Number of Detected Data			1
41						Number of Distinct Detected Data	1		Number of Non-Detect Data			47
42									Percent Non-Detects			97.92%
43												
44				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
45				It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).								
46												
47				The data set for variable Aldrin was not processed!								
48												
49												
50												
51	Benzaldehyde											
52												
53						General Statistics						

	A–E	F	G–K	L
54	Number of Valid Data	48	Number of Detected Data	5
55	Number of Distinct Detected Data	5	Number of Non-Detect Data	43
56			Percent Non-Detects	89.58%
57				
58	**Raw Statistics**		**Log-transformed Statistics**	
59	Minimum Detected	0.26	Minimum Detected	-1.347
60	Maximum Detected	0.49	Maximum Detected	-0.713
61	Mean of Detected	0.328	Mean of Detected	-1.143
62	SD of Detected	0.0936	SD of Detected	0.254
63	Minimum Non-Detect	0.29	Minimum Non-Detect	-1.238
64	Maximum Non-Detect	3	Maximum Non-Detect	1.099
65				
66	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	48
67	For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
68	Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
69				
70	**Warning: There are only 5 Detected Values in this data**			
71	**Note: It should be noted that even though bootstrap may be performed on this data set**			
72	**the resulting calculations may not be reliable enough tp draw conclusions**			
73				
74	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**			
75				
76				
77	**UCL Statistics**			
78	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
79	Shapiro Wilk Test Statistic	0.775	Shapiro Wilk Test Statistic	0.829
80	5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
81	**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
82				
83	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
84	DL/2 Substitution Method		DL/2 Substitution Method	
85	Mean	0.475	Mean	-1.297
86	SD	0.563	SD	0.966
87	95% DL/2 (t) UCL	0.612	95% H-Stat (DL/2) UCL	0.769
88				
89	Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
90	**MLE method failed to converge properly**		Mean in Log Scale	-1.325
91			SD in Log Scale	0.158
92			Mean in Original Scale	0.269
93			SD in Original Scale	0.047
94			95% Percentile Bootstrap UCL	0.281
95			95% BCA Bootstrap UCL	0.283
96				
97	**Gamma Distribution Test with Detected Values Only**		**Data Distribution Test with Detected Values Only**	
98	k star (bias corrected)	7.37	**Data appear Normal at 5% Significance Level**	
99	Theta Star	0.0445		
100	nu star	73.7		
101				
102	A-D Test Statistic	0.567	**Nonparametric Statistics**	
103	5% A-D Critical Value	0.679	Kaplan-Meier (KM) Method	
104	K-S Test Statistic	0.679	Mean	0.274
105	5% K-S Critical Value	0.357	SD	0.0379
106	**Data appear Gamma Distributed at 5% Significance Level**		SE of Mean	0.00781

	A	B	C	D	E	F	G	H	I	J	K	L
107											95% KM (t) UCL	0.287
108				**Assuming Gamma Distribution**							95% KM (z) UCL	0.286
109				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.289
110					Minimum	0.26					95% KM (bootstrap t) UCL	0.297
111					Maximum	0.49					95% KM (BCA) UCL	0.32
112					Mean	0.321					95% KM (Percentile Bootstrap) UCL	0.32
113					Median	0.318					95% KM (Chebyshev) UCL	0.308
114					SD	0.0294					97.5% KM (Chebyshev) UCL	0.322
115					k star	135.6					99% KM (Chebyshev) UCL	0.351
116					Theta star	0.00237						
117					Nu star	13019					**Potential UCLs to Use**	
118					AppChi2	12755					95% KM (t) UCL	0.287
119					95% Gamma Approximate UCL	0.328					95% KM (Percentile Bootstrap) UCL	0.32
120					95% Adjusted Gamma UCL	0.328						
121	**Note: DL/2 is not a recommended method.**											
122												
123												
124	**Endosulfan I**											
125												
126					**General Statistics**							
127					Number of Valid Data	48					Number of Detected Data	8
128					Number of Distinct Detected Data	8					Number of Non-Detect Data	40
129											Percent Non-Detects	83.33%
130												
131				**Raw Statistics**						**Log-transformed Statistics**		
132					Minimum Detected	0.00034					Minimum Detected	-7.987
133					Maximum Detected	0.0044					Maximum Detected	-5.426
134					Mean of Detected	0.00175					Mean of Detected	-6.804
135					SD of Detected	0.0017					SD of Detected	1.032
136					Minimum Non-Detect	0.00031					Minimum Non-Detect	-8.079
137					Maximum Non-Detect	0.00032					Maximum Non-Detect	-8.047
138												
139	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	40
140	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	8
141	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
142												
143				**Warning: There are only 8 Detected Values in this data**								
144				**Note: It should be noted that even though bootstrap may be performed on this data set**								
145				**the resulting calculations may not be reliable enough tp draw conclusions**								
146												
147				**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**								
148												
149												
150					**UCL Statistics**							
151				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
152					Shapiro Wilk Test Statistic	0.773					Shapiro Wilk Test Statistic	0.851
153					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
154				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
155												
156				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
157					DL/2 Substitution Method						DL/2 Substitution Method	
158					Mean	0.0004223					Mean	-8.439
159					SD	0.0008913					SD	0.839

	A	B	C	D	E	F	G	H	I	J	K	L
160					95% DL/2 (t) UCL	0.0006382				95% H-Stat (DL/2) UCL		0.000318
161												
162				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
163				**MLE yields a negative mean**						Mean in Log Scale		-10.79
164										SD in Log Scale		2.578
165										Mean in Original Scale		0.0003215
166										SD in Original Scale		0.0009239
167										95% Percentile Bootstrap UCL		0.0005621
168										95% BCA Bootstrap UCL		0.0006537
169												
170				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
171				k star (bias corrected)		0.853				**Data appear Lognormal at 5% Significance Level**		
172				Theta Star		0.00206						
173				nu star		13.64						
174												
175				A-D Test Statistic		0.753				**Nonparametric Statistics**		
176				5% A-D Critical Value		0.732				Kaplan-Meier (KM) Method		
177				K-S Test Statistic		0.732				Mean		0.0005756
178				5% K-S Critical Value		0.3				SD		0.0008372
179				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.0001292
180										95% KM (t) UCL		0.0007924
181				**Assuming Gamma Distribution**						95% KM (z) UCL		0.0007881
182				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.000748
183				Minimum		1E-09				95% KM (bootstrap t) UCL		0.0009436
184				Maximum		0.024				95% KM (BCA) UCL		0.00106
185				Mean		0.00945				95% KM (Percentile Bootstrap) UCL		0.0009402
186				Median		0.0082				95% KM (Chebyshev) UCL		0.00114
187				SD		0.00755				97.5% KM (Chebyshev) UCL		0.00138
188				k star		0.683				99% KM (Chebyshev) UCL		0.00186
189				Theta star		0.0138						
190				Nu star		65.56				**Potential UCLs to Use**		
191				AppChi2		47.93				95% KM (BCA) UCL		0.00106
192				95% Gamma Approximate UCL		0.0129						
193				95% Adjusted Gamma UCL		0.0131						
194	**Note: DL/2 is not a recommended method.**											
195												
196												
197	**Endosulfan II**											
198												
199						**General Statistics**						
200				Number of Valid Data		48				Number of Detected Data		3
201				Number of Distinct Detected Data		3				Number of Non-Detect Data		45
202										Percent Non-Detects		93.75%
203												
204				**Raw Statistics**						**Log-transformed Statistics**		
205				Minimum Detected		0.00033				Minimum Detected		-8.016
206				Maximum Detected		0.0004				Maximum Detected		-7.824
207				Mean of Detected		0.00037				Mean of Detected		-7.905
208				SD of Detected		3.606E-05				SD of Detected		0.0996
209				Minimum Non-Detect		0.00031				Minimum Non-Detect		-8.079
210				Maximum Non-Detect		0.00032				Maximum Non-Detect		-8.047
211												
212	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		45

	A	B	C	D	E	F	G	H	I	J	K	L
213	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
214	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
215												
216	**Warning: There are only 3 Distinct Detected Values in this data set**											
217	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
218	**Those methods will return a 'N/A' value on your output display!**											
219												
220	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
221	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
222												
223												
224	**UCL Statistics**											
225	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
226	Shapiro Wilk Test Statistic					0.942	Shapiro Wilk Test Statistic					0.932
227	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
228	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
229												
230	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
231	DL/2 Substitution Method						DL/2 Substitution Method					
232	Mean					0.0001696	Mean					-8.711
233	SD					5.286E-05	SD					0.212
234	95% DL/2 (t) UCL					0.0001824	95% H-Stat (DL/2) UCL					0.0001747
235												
236	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
237	Mean					0.0003767	Mean in Log Scale					-8.628
238	SD					2.944E-05	SD in Log Scale					0.355
239	95% MLE (t) UCL					0.0003838	Mean in Original Scale					0.0001906
240	95% MLE (Tiku) UCL					0.0004049	SD in Original Scale					7.036E-05
241							95% Percentile Bootstrap UCL					0.0002082
242							95% BCA Bootstrap UCL					0.0002085
243												
244	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
245	k star (bias corrected)					N/A	**Data appear Normal at 5% Significance Level**					
246	Theta Star					N/A						
247	nu star					N/A						
248												
249	A-D Test Statistic					0.337	**Nonparametric Statistics**					
250	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
251	K-S Test Statistic					N/A	Mean					0.0003325
252	5% K-S Critical Value					N/A	SD					1.216E-05
253	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean					2.15E-06
254							95% KM (t) UCL					0.0003361
255	**Assuming Gamma Distribution**						95% KM (z) UCL					0.000336
256	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0003644
257	Minimum					N/A	95% KM (bootstrap t) UCL					0.0003338
258	Maximum					N/A	95% KM (BCA) UCL					0.0004
259	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.0004
260	Median					N/A	95% KM (Chebyshev) UCL					0.0003419
261	SD					N/A	97.5% KM (Chebyshev) UCL					0.0003459
262	k star					N/A	99% KM (Chebyshev) UCL					0.0003539
263	Theta star					N/A						
264	Nu star					N/A	**Potential UCLs to Use**					
265	AppChi2					N/A	95% KM (t) UCL					0.0003361

	A	B	C	D	E	F	G	H	I	J	K	L
266				95% Gamma Approximate UCL		N/A			95% KM (Percentile Bootstrap) UCL			0.0004
267				95% Adjusted Gamma UCL		N/A						
268	Note: DL/2 is not a recommended method.											
269												
270												
271	Endosulfan Sulfate											
272												
273					General Statistics							
274				Number of Valid Observations		48			Number of Distinct Observations			40
275												
276				Raw Statistics					Log-transformed Statistics			
277				Minimum		0.00044			Minimum of Log Data			-7.729
278				Maximum		0.012			Maximum of Log Data			-4.423
279				Mean		0.00381			Mean of log Data			-5.863
280				Median		0.00345			SD of log Data			0.828
281				SD		0.00281						
282				Coefficient of Variation		0.736						
283				Skewness		1.108						
284												
285					Relevant UCL Statistics							
286				Normal Distribution Test					Lognormal Distribution Test			
287				Shapiro Wilk Test Statistic		0.892			Shapiro Wilk Test Statistic			0.96
288				Shapiro Wilk Critical Value		0.947			Shapiro Wilk Critical Value			0.947
289				Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level			
290												
291				Assuming Normal Distribution					Assuming Lognormal Distribution			
292				95% Student's-t UCL		0.00449			95% H-UCL			0.0052
293				95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL			0.0063
294				95% Adjusted-CLT UCL		0.00455			97.5% Chebyshev (MVUE) UCL			0.00731
295				95% Modified-t UCL		0.0045			99% Chebyshev (MVUE) UCL			0.00929
296												
297				Gamma Distribution Test					Data Distribution			
298				k star (bias corrected)		1.75			Data appear Gamma Distributed at 5% Significance Level			
299				Theta Star		0.00218						
300				nu star		168						
301				Approximate Chi Square Value (.05)		139			Nonparametric Statistics			
302				Adjusted Level of Significance		0.045			95% CLT UCL			0.00448
303				Adjusted Chi Square Value		138.2			95% Jackknife UCL			0.00449
304									95% Standard Bootstrap UCL			0.00447
305				Anderson-Darling Test Statistic		0.258			95% Bootstrap-t UCL			0.00462
306				Anderson-Darling 5% Critical Value		0.764			95% Hall's Bootstrap UCL			0.00456
307				Kolmogorov-Smirnov Test Statistic		0.0652			95% Percentile Bootstrap UCL			0.00448
308				Kolmogorov-Smirnov 5% Critical Value		0.13			95% BCA Bootstrap UCL			0.0045
309				Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL			0.00558
310									97.5% Chebyshev(Mean, Sd) UCL			0.00634
311				Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL			0.00785
312				95% Approximate Gamma UCL		0.00461						
313				95% Adjusted Gamma UCL		0.00464						
314												
315				Potential UCL to Use					Use 95% Approximate Gamma UCL			0.00461
316												
317												
318	Heptachlor											

	A	B	C	D	E	F	G	H	I	J	K	L
319												
320						General Statistics						
321						Number of Valid Data	48			Number of Detected Data		1
322						Number of Distinct Detected Data	1			Number of Non-Detect Data		47
323										Percent Non-Detects		97.92%
324												
325						Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!						
326						It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).						
327												
328						The data set for variable Heptachlor was not processed!						
329												
330												
331												
332	Hexachlorobenzene											
333												
334						General Statistics						
335						Number of Valid Data	48			Number of Detected Data		0
336						Number of Distinct Detected Data	0			Number of Non-Detect Data		48
337										Percent Non-Detects		100.00%
338												
339						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
340						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
341						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
342												
343						The data set for variable Hexachlorobenzene was not processed!						
344												
345												
346												
347	Isophorone											
348												
349						General Statistics						
350						Number of Valid Data	48			Number of Detected Data		11
351						Number of Distinct Detected Data	10			Number of Non-Detect Data		37
352										Percent Non-Detects		77.08%
353												
354						Raw Statistics				Log-transformed Statistics		
355						Minimum Detected	0.18			Minimum Detected		-1.715
356						Maximum Detected	0.71			Maximum Detected		-0.342
357						Mean of Detected	0.37			Mean of Detected		-1.072
358						SD of Detected	0.158			SD of Detected		0.409
359						Minimum Non-Detect	0.29			Minimum Non-Detect		-1.238
360						Maximum Non-Detect	0.31			Maximum Non-Detect		-1.171
361												
362						Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect		41
363						For all methods (except KM, DL/2, and ROS Methods),				Number treated as Detected		7
364						Observations < Largest ND are treated as NDs				Single DL Non-Detect Percentage		85.42%
365												
366						UCL Statistics						
367						Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only		
368						Shapiro Wilk Test Statistic	0.909			Shapiro Wilk Test Statistic		0.975
369						5% Shapiro Wilk Critical Value	0.85			5% Shapiro Wilk Critical Value		0.85
370						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
373					DL/2 Substitution Method						DL/2 Substitution Method	
374					Mean	0.199					Mean	-1.714
375					SD	0.119					SD	0.401
376					95% DL/2 (t) UCL	0.228					95% H-Stat (DL/2) UCL	0.208
377												
378					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
379					Mean	0.498					Mean in Log Scale	-1.419
380					SD	0.131					SD in Log Scale	0.366
381					95% MLE (t) UCL	0.529					Mean in Original Scale	0.259
382					95% MLE (Tiku) UCL	0.578					SD in Original Scale	0.109
383											95% Percentile Bootstrap UCL	0.287
384											95% BCA Bootstrap UCL	0.291
385												
386	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
387					k star (bias corrected)	4.878	**Data appear Normal at 5% Significance Level**					
388					Theta Star	0.0758						
389					nu star	107.3						
390												
391					A-D Test Statistic	0.248	**Nonparametric Statistics**					
392					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
393					K-S Test Statistic	0.731					Mean	0.26
394					5% K-S Critical Value	0.256					SD	0.0978
395	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0199
396											95% KM (t) UCL	0.293
397	**Assuming Gamma Distribution**										95% KM (z) UCL	0.293
398					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.297
399					Minimum	0.18					95% KM (bootstrap t) UCL	0.304
400					Maximum	0.71					95% KM (BCA) UCL	0.299
401					Mean	0.38					95% KM (Percentile Bootstrap) UCL	0.298
402					Median	0.389					95% KM (Chebyshev) UCL	0.347
403					SD	0.0885					97.5% KM (Chebyshev) UCL	0.384
404					k star	17.52					99% KM (Chebyshev) UCL	0.458
405					Theta star	0.0217						
406					Nu star	1682	**Potential UCLs to Use**					
407					AppChi2	1588					95% KM (t) UCL	0.293
408					95% Gamma Approximate UCL	0.402					95% KM (Percentile Bootstrap) UCL	0.298
409					95% Adjusted Gamma UCL	0.403						
410	**Note: DL/2 is not a recommended method.**											
411												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\P-6 FI.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11					General Statistics							
12				Number of Valid Data		8		Number of Detected Data				0
13				Number of Distinct Detected Data		0		Number of Non-Detect Data				8
14								Percent Non-Detects				100.00%
15												
16				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
17				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
18				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
19												
20				The data set for variable 4-Chloro-3-methylphenol was not processed!								
21												
22												
23												
24	4-Nitrophenol											
25												
26					General Statistics							
27				Number of Valid Data		8		Number of Detected Data				0
28				Number of Distinct Detected Data		0		Number of Non-Detect Data				8
29								Percent Non-Detects				100.00%
30												
31				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
32				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
33				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
34												
35				The data set for variable 4-Nitrophenol was not processed!								
36												
37												
38												
39	Aldrin											
40												
41					General Statistics							
42				Number of Valid Data		8		Number of Detected Data				0
43				Number of Distinct Detected Data		0		Number of Non-Detect Data				8
44								Percent Non-Detects				100.00%
45												
46				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
47				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
48				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
49												
50				The data set for variable Aldrin was not processed!								
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Benzaldehyde											
55												
56					General Statistics							
57					Number of Valid Data	8				Number of Detected Data		4
58					Number of Distinct Detected Data	4				Number of Non-Detect Data		4
59										Percent Non-Detects		50.00%
60												
61				Raw Statistics						Log-transformed Statistics		
62					Minimum Detected	0.11				Minimum Detected		-2.207
63					Maximum Detected	0.2				Maximum Detected		-1.609
64					Mean of Detected	0.145				Mean of Detected		-1.956
65					SD of Detected	0.0387				SD of Detected		0.252
66					Minimum Non-Detect	0.15				Minimum Non-Detect		-1.897
67					Maximum Non-Detect	0.15				Maximum Non-Detect		-1.897
68												
69												
70				Warning: There are only 4 Distinct Detected Values in this data								
71				Note: It should be noted that even though bootstrap may be performed on this data set								
72				the resulting calculations may not be reliable enough tp draw conclusions								
73												
74				It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.								
75												
76												
77					UCL Statistics							
78				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
79					Shapiro Wilk Test Statistic	0.897				Shapiro Wilk Test Statistic		0.941
80					5% Shapiro Wilk Critical Value	0.748				5% Shapiro Wilk Critical Value		0.748
81				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
82												
83				Assuming Normal Distribution						Assuming Lognormal Distribution		
84					DL/2 Substitution Method					DL/2 Substitution Method		
85					Mean	0.11				Mean		-2.273
86					SD	0.0452				SD		0.377
87					95% DL/2 (t) UCL	0.14				95% H-Stat (DL/2) UCL		0.172
88												
89					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
90				MLE method failed to converge properly						Mean in Log Scale		-2.011
91										SD in Log Scale		0.204
92										Mean in Original Scale		0.136
93										SD in Original Scale		0.03
94										95% Percentile Bootstrap UCL		0.155
95										95% BCA Bootstrap UCL		0.158
96												
97				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
98					k star (bias corrected)	5.261				Data appear Normal at 5% Significance Level		
99					Theta Star	0.0276						
100					nu star	42.08						
101												
102					A-D Test Statistic	0.332				Nonparametric Statistics		
103					5% A-D Critical Value	0.657				Kaplan-Meier (KM) Method		
104					K-S Test Statistic	0.657				Mean		0.136
105					5% K-S Critical Value	0.394				SD		0.0269
106				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		0.0123

	A	B	C	D	E	F	G	H	I	J	K	L
107											95% KM (t) UCL	0.159
108				Assuming Gamma Distribution							95% KM (z) UCL	0.156
109					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.16
110					Minimum	0.11					95% KM (bootstrap t) UCL	0.166
111					Maximum	0.2					95% KM (BCA) UCL	0.155
112					Mean	0.143					95% KM (Percentile Bootstrap) UCL	0.155
113					Median	0.137					95% KM (Chebyshev) UCL	0.189
114					SD	0.027					97.5% KM (Chebyshev) UCL	0.213
115					k star	22.09					99% KM (Chebyshev) UCL	0.258
116					Theta star	0.00647						
117					Nu star	353.5				Potential UCLs to Use		
118					AppChi2	310.9					95% KM (t) UCL	0.159
119					95% Gamma Approximate UCL	0.163					95% KM (Percentile Bootstrap) UCL	0.155
120					95% Adjusted Gamma UCL	N/A						
121	Note: DL/2 is not a recommended method.											
122												
123												
124	Endosulfan I											
125												
126						General Statistics						
127					Number of Valid Data	8					Number of Detected Data	0
128					Number of Distinct Detected Data	0					Number of Non-Detect Data	8
129											Percent Non-Detects	100.00%
130												
131				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
132				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
133				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
134												
135				The data set for variable Endosulfan I was not processed!								
136												
137												
138												
139	Endosulfan II											
140												
141						General Statistics						
142					Number of Valid Data	8					Number of Detected Data	0
143					Number of Distinct Detected Data	0					Number of Non-Detect Data	8
144											Percent Non-Detects	100.00%
145												
146				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
147				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
148				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
149												
150				The data set for variable Endosulfan II was not processed!								
151												
152												
153												
154	Endosulfan Sulfate											
155												
156						General Statistics						
157					Number of Valid Data	8					Number of Detected Data	3
158					Number of Distinct Detected Data	3					Number of Non-Detect Data	5
159											Percent Non-Detects	62.50%

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**Raw Statistics**						**Log-transformed Statistics**					
162					Minimum Detected	0.00045					Minimum Detected	-7.706
163					Maximum Detected	0.0011					Maximum Detected	-6.812
164					Mean of Detected	0.00081					Mean of Detected	-7.185
165					SD of Detected	0.0003306					SD of Detected	0.465
166					Minimum Non-Detect	0.00031					Minimum Non-Detect	-8.079
167					Maximum Non-Detect	0.00032					Maximum Non-Detect	-8.047
168												
169	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	5
170	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	3
171	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	62.50%
172												
173	**Warning: There are only 3 Distinct Detected Values in this data set**											
174	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
175	**Those methods will return a 'N/A' value on your output display!**											
176												
177	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
178	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
179												
180												
181	**UCL Statistics**											
182	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
183					Shapiro Wilk Test Statistic	0.966					Shapiro Wilk Test Statistic	0.923
184					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
185	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
186												
187	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
188					DL/2 Substitution Method						DL/2 Substitution Method	
189					Mean	0.0004019					Mean	-8.169
190					SD	0.0003814					SD	0.852
191					95% DL/2 (t) UCL	0.0006573					95% H-Stat (DL/2) UCL	0.0007362
192												
193					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
194					Mean	0.0001462					Mean in Log Scale	-8.239
195					SD	0.000631					SD in Log Scale	0.972
196					95% MLE (t) UCL	0.0005689					Mean in Original Scale	0.0003988
197					95% MLE (Tiku) UCL	0.0007644					SD in Original Scale	0.0003869
198											95% Percentile Bootstrap UCL	0.0006024
199											95% BCA Bootstrap UCL	0.0006731
200												
201	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
202					k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**					
203					Theta Star	N/A						
204					nu star	N/A						
205												
206					A-D Test Statistic	0.334	**Nonparametric Statistics**					
207					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
208					K-S Test Statistic	N/A					Mean	0.000585
209					5% K-S Critical Value	N/A					SD	0.0002402
210	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.000104
211											95% KM (t) UCL	0.0007821
212	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0007561

	A	B	C	D	E	F	G	H	I	J	K	L
213				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.0008873
214					Minimum	N/A				95% KM (bootstrap t) UCL		0.0006508
215					Maximum	N/A				95% KM (BCA) UCL		0.0011
216					Mean	N/A				95% KM (Percentile Bootstrap) UCL		0.0011
217					Median	N/A				95% KM (Chebyshev) UCL		0.00104
218					SD	N/A				97.5% KM (Chebyshev) UCL		0.00123
219					k star	N/A				99% KM (Chebyshev) UCL		0.00162
220					Theta star	N/A						
221					Nu star	N/A			**Potential UCLs to Use**			
222					AppChi2	N/A				95% KM (t) UCL		0.0007821
223				95% Gamma Approximate UCL		N/A				95% KM (Percentile Bootstrap) UCL		0.0011
224				95% Adjusted Gamma UCL		N/A						
225	**Note: DL/2 is not a recommended method.**											
226												
227												
228	**Heptachlor**											
229												
230					**General Statistics**							
231				Number of Valid Data		8				Number of Detected Data		0
232				Number of Distinct Detected Data		0				Number of Non-Detect Data		8
233										Percent Non-Detects		100.00%
234												
235	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
236	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
237	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
238												
239	**The data set for variable Heptachlor was not processed!**											
240												
241												
242												
243	**Hexachlorobenzene**											
244												
245					**General Statistics**							
246				Number of Valid Data		8				Number of Detected Data		2
247				Number of Distinct Detected Data		2				Number of Non-Detect Data		6
248										Percent Non-Detects		75.00%
249												
250				**Raw Statistics**						**Log-transformed Statistics**		
251				Minimum Detected		0.0054				Minimum Detected		-5.221
252				Maximum Detected		0.0074				Maximum Detected		-4.906
253				Mean of Detected		0.0064				Mean of Detected		-5.064
254				SD of Detected		0.00141				SD of Detected		0.223
255				Minimum Non-Detect		0.0037				Minimum Non-Detect		-5.599
256				Maximum Non-Detect		0.0038				Maximum Non-Detect		-5.573
257												
258	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
259	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		2
260	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		75.00%
261												
262	**Warning: Data set has only 2 Distinct Detected Values.**											
263	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
264	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
267												
268	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
269	Those methods will return a 'N/A' value on your output display!											
270												
271	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
272	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
273												
274												
275	UCL Statistics											
276	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
277					Shapiro Wilk Test Statistic	1				Shapiro Wilk Test Statistic		1
278					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
279	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
280												
281	Assuming Normal Distribution						Assuming Lognormal Distribution					
282					DL/2 Substitution Method					DL/2 Substitution Method		
283					Mean	0.00301				Mean		-5.972
284					SD	0.00216				SD		0.567
285					95% DL/2 (t) UCL	0.00446				95% H-Stat (DL/2) UCL		0.00406
286												
287					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
288	MLE method failed to converge properly									Mean in Log Scale		N/A
289										SD in Log Scale		N/A
290										Mean in Original Scale		N/A
291										SD in Original Scale		N/A
292										95% Percentile Bootstrap UCL		N/A
293										95% BCA Bootstrap UCL		N/A
294												
295	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
296					k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)					
297					Theta Star	N/A						
298					nu star	N/A						
299												
300					A-D Test Statistic	0.359	Nonparametric Statistics					
301					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
302					K-S Test Statistic	N/A				Mean		0.00565
303					5% K-S Critical Value	N/A				SD		0.0006614
304	Data not Gamma Distributed at 5% Significance Level									SE of Mean		0.0003307
305										95% KM (t) UCL		0.00628
306	Assuming Gamma Distribution									95% KM (z) UCL		0.00619
307					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0071
308					Minimum	N/A				95% KM (bootstrap t) UCL		1.8E+308
309					Maximum	N/A				95% KM (BCA) UCL		0.0074
310					Mean	N/A				95% KM (Percentile Bootstrap) UCL		0.0074
311					Median	N/A				95% KM (Chebyshev) UCL		0.00709
312					SD	N/A				97.5% KM (Chebyshev) UCL		0.00772
313					k star	N/A				99% KM (Chebyshev) UCL		0.00894
314					Theta star	N/A						
315					Nu star	N/A	Potential UCLs to Use					
316					AppChi2	N/A				95% KM (t) UCL		0.00628
317					95% Gamma Approximate UCL	N/A				95% KM (% Bootstrap) UCL		0.0074
318					95% Adjusted Gamma UCL	N/A						

	A	B	C	D	E	F	G	H	I	J	K	L
319	Note: DL/2 is not a recommended method.											
320												
321												
322	Isophorone											
323												
324						General Statistics						
325					Number of Valid Data	8				Number of Detected Data		0
326					Number of Distinct Detected Data	0				Number of Non-Detect Data		8
327										Percent Non-Detects		100.00%
328												
329					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
330					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
331					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
332												
333					The data set for variable Isophorone was not processed!							
334												
335												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Quinnville SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	19			Number of Distinct Observations	18	
13												
14				Raw Statistics						Log-transformed Statistics		
15						Minimum	0.01			Minimum of Log Data	-4.605	
16						Maximum	1.4			Maximum of Log Data	0.336	
17						Mean	0.498			Mean of log Data	-1.243	
18						Median	0.455			SD of log Data	1.327	
19						SD	0.419					
20						Coefficient of Variation	0.842					
21						Skewness	0.808					
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test						Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.91			Shapiro Wilk Test Statistic	0.898	
26						Shapiro Wilk Critical Value	0.901			Shapiro Wilk Critical Value	0.901	
27				Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
28												
29				Assuming Normal Distribution						Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.665			95% H-UCL	1.836	
31				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	1.638	
32						95% Adjusted-CLT UCL	0.675			97.5% Chebyshev (MVUE) UCL	2.068	
33						95% Modified-t UCL	0.668			99% Chebyshev (MVUE) UCL	2.913	
34												
35				Gamma Distribution Test						Data Distribution		
36						k star (bias corrected)	0.92			Data appear Normal at 5% Significance Level		
37						Theta Star	0.541					
38						nu star	34.97					
39						Approximate Chi Square Value (.05)	22.44			Nonparametric Statistics		
40						Adjusted Level of Significance	0.0369			95% CLT UCL	0.656	
41						Adjusted Chi Square Value	21.57			95% Jackknife UCL	0.665	
42										95% Standard Bootstrap UCL	0.65	
43						Anderson-Darling Test Statistic	0.272			95% Bootstrap-t UCL	0.697	
44						Anderson-Darling 5% Critical Value	0.768			95% Hall's Bootstrap UCL	0.677	
45						Kolmogorov-Smirnov Test Statistic	0.121			95% Percentile Bootstrap UCL	0.664	
46						Kolmogorov-Smirnov 5% Critical Value	0.204			95% BCA Bootstrap UCL	0.682	
47				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	0.917	
48										97.5% Chebyshev(Mean, Sd) UCL	1.099	
49				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	1.455	
50						95% Approximate Gamma UCL	0.776					
51						95% Adjusted Gamma UCL	0.808					
52												
53				Potential UCL to Use						Use 95% Student's-t UCL	0.665	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Carbazole**											
57												
58						**General Statistics**						
59					Number of Valid Data	19				Number of Detected Data		10
60					Number of Distinct Detected Data	8				Number of Non-Detect Data		9
61										Percent Non-Detects		47.37%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.052				Minimum Detected		-2.957
65					Maximum Detected	0.21				Maximum Detected		-1.561
66					Mean of Detected	0.136				Mean of Detected		-2.102
67					SD of Detected	0.0585				SD of Detected		0.511
68					Minimum Non-Detect	0.16				Minimum Non-Detect		-1.833
69					Maximum Non-Detect	0.41				Maximum Non-Detect		-0.892
70												
71				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		19
72				For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected		0
73				Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		100.00%
74												
75						**UCL Statistics**						
76				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
77					Shapiro Wilk Test Statistic	0.904				Shapiro Wilk Test Statistic		0.873
78					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
79				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
80												
81				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
82					DL/2 Substitution Method					DL/2 Substitution Method		
83					Mean	0.131				Mean		-2.13
84					SD	0.0567				SD		0.461
85					95% DL/2 (t) UCL	0.153				95% H-Stat (DL/2) UCL		0.211
86												
87					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
88				**MLE method failed to converge properly**						Mean in Log Scale		-2.229
89										SD in Log Scale		0.407
90										Mean in Original Scale		0.116
91										SD in Original Scale		0.0479
92										95% Percentile Bootstrap UCL		0.134
93										95% BCA Bootstrap UCL		0.136
94												
95				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
96					k star (bias corrected)	3.523				**Data appear Normal at 5% Significance Level**		
97					Theta Star	0.0385						
98					nu star	70.46						
99												
100					A-D Test Statistic	0.561				**Nonparametric Statistics**		
101					5% A-D Critical Value	0.729				Kaplan-Meier (KM) Method		
102					K-S Test Statistic	0.729				Mean		0.12
103					5% K-S Critical Value	0.267				SD		0.0536
104				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.016
105										95% KM (t) UCL		0.147
106				**Assuming Gamma Distribution**						95% KM (z) UCL		0.146

	A	B	C	D	E	F	G	H	I	J	K	L
107					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.148
108					Minimum	0.052					95% KM (bootstrap t) UCL	0.148
109					Maximum	0.21					95% KM (BCA) UCL	0.146
110					Mean	0.14					95% KM (Percentile Bootstrap) UCL	0.145
111					Median	0.152					95% KM (Chebyshev) UCL	0.189
112					SD	0.0444					97.5% KM (Chebyshev) UCL	0.22
113					k star	7.052					99% KM (Chebyshev) UCL	0.279
114					Theta star	0.0199						
115					Nu star	268			**Potential UCLs to Use**			
116					AppChi2	231.1					95% KM (t) UCL	0.147
117					95% Gamma Approximate UCL	0.163					95% KM (Percentile Bootstrap) UCL	0.145
118					95% Adjusted Gamma UCL	0.165						
119	**Note: DL/2 is not a recommended method.**											
120												
121												
122	**Dibenzofuran**											
123												
124					**General Statistics**							
125					Number of Valid Data	19					Number of Detected Data	4
126					Number of Distinct Detected Data	4					Number of Non-Detect Data	15
127											Percent Non-Detects	78.95%
128												
129					**Raw Statistics**				**Log-transformed Statistics**			
130					Minimum Detected	0.065					Minimum Detected	-2.733
131					Maximum Detected	0.17					Maximum Detected	-1.772
132					Mean of Detected	0.116					Mean of Detected	-2.257
133					SD of Detected	0.057					SD of Detected	0.525
134					Minimum Non-Detect	0.16					Minimum Non-Detect	-1.833
135					Maximum Non-Detect	0.47					Maximum Non-Detect	-0.755
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	19
138	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
139	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
140												
141					**Warning: There are only 4 Distinct Detected Values in this data**							
142					**Note: It should be noted that even though bootstrap may be performed on this data set**							
143					**the resulting calculations may not be reliable enough tp draw conclusions**							
144												
145					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
146												
147												
148					**UCL Statistics**							
149					**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**			
150					Shapiro Wilk Test Statistic	0.786					Shapiro Wilk Test Statistic	0.781
151					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
152					**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
153												
154					**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
155					DL/2 Substitution Method						DL/2 Substitution Method	
156					Mean	0.138					Mean	-2.064
157					SD	0.0567					SD	0.435
158					95% DL/2 (t) UCL	0.161					95% H-Stat (DL/2) UCL	0.226
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
161			**MLE method failed to converge properly**								Mean in Log Scale	-2.436
162											SD in Log Scale	0.285
163											Mean in Original Scale	0.0913
164											SD in Original Scale	0.0299
165											95% Percentile Bootstrap UCL	0.103
166											95% BCA Bootstrap UCL	0.105
167												
168			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
169					k star (bias corrected)	1.454			**Data appear Normal at 5% Significance Level**			
170					Theta Star	0.0796						
171					nu star	11.63						
172												
173					A-D Test Statistic	0.614			**Nonparametric Statistics**			
174					5% A-D Critical Value	0.659					Kaplan-Meier (KM) Method	
175					K-S Test Statistic	0.659					Mean	0.0958
176					5% K-S Critical Value	0.396					SD	0.0449
177			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.0204
178											95% KM (t) UCL	0.131
179			**Assuming Gamma Distribution**								95% KM (z) UCL	0.129
180					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.132
181					Minimum	0.065					95% KM (bootstrap t) UCL	0.137
182					Maximum	0.17					95% KM (BCA) UCL	0.17
183					Mean	0.118					95% KM (Percentile Bootstrap) UCL	0.163
184					Median	0.12					95% KM (Chebyshev) UCL	0.185
185					SD	0.0235					97.5% KM (Chebyshev) UCL	0.223
186					k star	19.75					99% KM (Chebyshev) UCL	0.299
187					Theta star	0.00599						
188					Nu star	750.5			**Potential UCLs to Use**			
189					AppChi2	687.9					95% KM (t) UCL	0.131
190					95% Gamma Approximate UCL	0.129					95% KM (Percentile Bootstrap) UCL	0.163
191					95% Adjusted Gamma UCL	N/A						
192	**Note: DL/2 is not a recommended method.**											
193												
194												
195	**Cobalt**											
196												
197						**General Statistics**						
198					Number of Valid Data	19					Number of Detected Data	15
199					Number of Distinct Detected Data	11					Number of Non-Detect Data	4
200											Percent Non-Detects	21.05%
201												
202			**Raw Statistics**						**Log-transformed Statistics**			
203					Minimum Detected	2.3					Minimum Detected	0.833
204					Maximum Detected	6.3					Maximum Detected	1.841
205					Mean of Detected	3.747					Mean of Detected	1.287
206					SD of Detected	1.037					SD of Detected	0.267
207					Minimum Non-Detect	8.4					Minimum Non-Detect	2.128
208					Maximum Non-Detect	14					Maximum Non-Detect	2.639
209												
210	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	19
211	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
212	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**UCL Statistics**											
215	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
216					Shapiro Wilk Test Statistic	0.938				Shapiro Wilk Test Statistic		0.98
217					5% Shapiro Wilk Critical Value	0.881				5% Shapiro Wilk Critical Value		0.881
218	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
219												
220	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
221					DL/2 Substitution Method					DL/2 Substitution Method		
222					Mean	4.121				Mean		1.372
223					SD	1.282				SD		0.304
224					95% DL/2 (t) UCL	4.631				95% H-Stat (DL/2) UCL		4.714
225												
226					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
227	**MLE method failed to converge properly**									Mean in Log Scale		1.287
228										SD in Log Scale		0.235
229										Mean in Original Scale		3.72
230										SD in Original Scale		0.916
231										95% Percentile Bootstrap UCL		4.069
232										95% BCA Bootstrap UCL		4.133
233												
234	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
235					k star (bias corrected)	12.02	**Data appear Normal at 5% Significance Level**					
236					Theta Star	0.312						
237					nu star	360.6						
238												
239					A-D Test Statistic	0.221	**Nonparametric Statistics**					
240					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
241					K-S Test Statistic	0.736				Mean		3.747
242					5% K-S Critical Value	0.221				SD		1.002
243	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.268
244										95% KM (t) UCL		4.211
245	**Assuming Gamma Distribution**									95% KM (z) UCL		4.187
246					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		4.214
247					Minimum	2.3				95% KM (bootstrap t) UCL		4.317
248					Maximum	6.3				95% KM (BCA) UCL		4.207
249					Mean	3.789				95% KM (Percentile Bootstrap) UCL		4.178
250					Median	3.945				95% KM (Chebyshev) UCL		4.914
251					SD	0.918				97.5% KM (Chebyshev) UCL		5.419
252					k star	15.83				99% KM (Chebyshev) UCL		6.411
253					Theta star	0.239						
254					Nu star	601.6	**Potential UCLs to Use**					
255					AppChi2	545.7				95% KM (t) UCL		4.211
256					95% Gamma Approximate UCL	4.177				95% KM (Percentile Bootstrap) UCL		4.178
257					95% Adjusted Gamma UCL	4.212						
258	**Note: DL/2 is not a recommended method.**											
259												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Shallow GW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,2,4-Trichlorobenzene											
10												
11				General Statistics								
12				Number of Valid Data		51				Number of Detected Data		1
13				Number of Distinct Detected Data		1				Number of Non-Detect Data		50
14										Percent Non-Detects		98.04%
15												
16				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
17				It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).								
18												
19				The data set for variable 1,2,4-Trichlorobenzene was not processed!								
20												
21												
22												
23	1,2-Dichlorobenzene											
24												
25				General Statistics								
26				Number of Valid Data		51				Number of Detected Data		18
27				Number of Distinct Detected Data		17				Number of Non-Detect Data		33
28										Percent Non-Detects		64.71%
29												
30				Raw Statistics						Log-transformed Statistics		
31				Minimum Detected		0.2				Minimum Detected		-1.609
32				Maximum Detected		4.4				Maximum Detected		1.482
33				Mean of Detected		1.039				Mean of Detected		-0.33
34				SD of Detected		1.058				SD of Detected		0.842
35				Minimum Non-Detect		0.5				Minimum Non-Detect		-0.693
36				Maximum Non-Detect		0.5				Maximum Non-Detect		-0.693
37												
38												
39				UCL Statistics								
40				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
41				Lilliefors Test Statistic		0.715				Lilliefors Test Statistic		0.928
42				5% Lilliefors Critical Value		0.897				5% Lilliefors Critical Value		0.897
43				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
44												
45				Assuming Normal Distribution						Assuming Lognormal Distribution		
46				DL/2 Substitution Method						DL/2 Substitution Method		
47				Mean		0.529				Mean		-1.013
48				SD		0.725				SD		0.708
49				95% DL/2 (t) UCL		0.699				95% H-Stat (DL/2) UCL		0.504
50												
51				Maximum Likelihood Estimate(MLE) Method		N/A				Log ROS Method		
52				MLE yields a negative mean						Mean in Log Scale		-0.933
53										SD in Log Scale		0.812

	A	B	C	D	E	F	G	H	I	J	K	L
54											Mean in Original Scale	0.579
55											SD in Original Scale	0.718
56											95% Percentile Bootstrap UCL	0.765
57											95% BCA Bootstrap UCL	0.817
58												
59				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
60					k star (bias corrected)	1.289			**Data appear Lognormal at 5% Significance Level**			
61					Theta Star	0.806						
62					nu star	46.4						
63												
64					A-D Test Statistic	1.004			**Nonparametric Statistics**			
65					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
66					K-S Test Statistic	0.756					Mean	0.583
67					5% K-S Critical Value	0.207					SD	0.701
68				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.104
69											95% KM (t) UCL	0.757
70				**Assuming Gamma Distribution**							95% KM (z) UCL	0.754
71					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.756
72					Minimum	0.2					95% KM (bootstrap t) UCL	0.85
73					Maximum	4.4					95% KM (BCA) UCL	0.778
74					Mean	1.055					95% KM (Percentile Bootstrap) UCL	0.761
75					Median	1.052					95% KM (Chebyshev) UCL	1.036
76					SD	0.617					97.5% KM (Chebyshev) UCL	1.233
77					k star	3.772					99% KM (Chebyshev) UCL	1.619
78					Theta star	0.28						
79					Nu star	384.7			**Potential UCLs to Use**			
80					AppChi2	340.3					95% KM (t) UCL	0.757
81					95% Gamma Approximate UCL	1.193					95% KM (% Bootstrap) UCL	0.761
82					95% Adjusted Gamma UCL	1.197						
83	**Note: DL/2 is not a recommended method.**											
84												
85												
86	**1,3-Dichlorobenzene**											
87												
88					**General Statistics**							
89					Number of Valid Data	51					Number of Detected Data	1
90					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
91											Percent Non-Detects	98.04%
92												
93				**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**								
94	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
95												
96				**The data set for variable 1,3-Dichlorobenzene was not processed!**								
97												
98												
99												
100	**2,4-Dimethylphenol**											
101												
102					**General Statistics**							
103					Number of Valid Data	42					Number of Detected Data	2
104					Number of Distinct Detected Data	2					Number of Non-Detect Data	40
105											Percent Non-Detects	95.24%
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Raw Statistics**						**Log-transformed Statistics**					
108					Minimum Detected	0.26					Minimum Detected	-1.347
109					Maximum Detected	8					Maximum Detected	2.079
110					Mean of Detected	4.13					Mean of Detected	0.366
111					SD of Detected	5.473					SD of Detected	2.423
112					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
113					Maximum Non-Detect	5					Maximum Non-Detect	1.609
114												
115	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	41
116	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
117	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	97.62%
118												
119	**Warning: Data set has only 2 Distinct Detected Values.**											
120	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
121	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
122												
123	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
124												
125	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
126	**Those methods will return a 'N/A' value on your output display!**											
127												
128	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
129	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
130												
131												
132	**UCL Statistics**											
133	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
134					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
135					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
136	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
137												
138	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
139					DL/2 Substitution Method						DL/2 Substitution Method	
140					Mean	2.31					Mean	0.619
141					SD	1.199					SD	0.837
142					95% DL/2 (t) UCL	2.622					95% H-Stat (DL/2) UCL	3.256
143												
144					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
145	**MLE method failed to converge properly**										Mean in Log Scale	N/A
146											SD in Log Scale	N/A
147											Mean in Original Scale	N/A
148											SD in Original Scale	N/A
149											95% Percentile Bootstrap UCL	N/A
150											95% BCA Bootstrap UCL	N/A
151												
152	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
153					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
154					Theta Star	N/A						
155					nu star	N/A						
156												
157					A-D Test Statistic	0.355	**Nonparametric Statistics**					
158					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
159					K-S Test Statistic	N/A					Mean	0.444

	A	B	C	D	E	F	G	H	I	J	K	L
160					5% K-S Critical Value	N/A					SD	1.18
161				Data not Gamma Distributed at 5% Significance Level							SE of Mean	0.257
162											95% KM (t) UCL	0.878
163				Assuming Gamma Distribution							95% KM (z) UCL	0.868
164				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	5.49
165					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
166					Maximum	N/A					95% KM (BCA) UCL	8
167					Mean	N/A					95% KM (Percentile Bootstrap) UCL	8
168					Median	N/A					95% KM (Chebyshev) UCL	1.567
169					SD	N/A					97.5% KM (Chebyshev) UCL	2.052
170					k star	N/A					99% KM (Chebyshev) UCL	3.006
171					Theta star	N/A						
172					Nu star	N/A				Potential UCLs to Use		
173					AppChi2	N/A					99% KM (Chebyshev) UCL	3.006
174					95% Gamma Approximate UCL	N/A						
175					95% Adjusted Gamma UCL	N/A						
176	Note: DL/2 is not a recommended method.											
177												
178												
179	2-Butanone											
180												
181						General Statistics						
182					Number of Valid Data	51					Number of Detected Data	1
183					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
184											Percent Non-Detects	98.04%
185												
186				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
187	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
188												
189					The data set for variable 2-Butanone was not processed!							
190												
191												
192												
193	2-Chlorophenol											
194												
195						General Statistics						
196					Number of Valid Data	51					Number of Detected Data	1
197					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
198											Percent Non-Detects	98.04%
199												
200				Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!								
201	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
202												
203					The data set for variable 2-Chlorophenol was not processed!							
204												
205												
206												
207	4,4'-DDD											
208												
209						General Statistics						
210					Number of Valid Data	48					Number of Detected Data	1
211					Number of Distinct Detected Data	1					Number of Non-Detect Data	47
212											Percent Non-Detects	97.92%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
215	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
216												
217	The data set for variable 4,4'-DDD was not processed!											
218												
219												
220												
221	4,4'-DDE											
222												
223	General Statistics											
224					Number of Valid Data	51			Number of Detected Data			2
225					Number of Distinct Detected Data	2			Number of Non-Detect Data			49
226									Percent Non-Detects			96.08%
227												
228	Raw Statistics						Log-transformed Statistics					
229					Minimum Detected	0.0038			Minimum Detected			-5.573
230					Maximum Detected	0.0056			Maximum Detected			-5.185
231					Mean of Detected	0.0047			Mean of Detected			-5.379
232					SD of Detected	0.00127			SD of Detected			0.274
233					Minimum Non-Detect	0.005			Minimum Non-Detect			-5.298
234					Maximum Non-Detect	0.01			Maximum Non-Detect			-4.605
235												
236	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			51
237	For all methods (except KM, DL/2, and ROS Methods),								Number treated as Detected			0
238	Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			100.00%
239												
240	Warning: Data set has only 2 Distinct Detected Values.											
241	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
242	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
243												
244	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
245												
246	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
247	Those methods will return a 'N/A' value on your output display!											
248												
249	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
250	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
251												
252												
253	UCL Statistics											
254	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
255					Lilliefors Test Statistic	1			Lilliefors Test Statistic			1
256					5% Lilliefors Critical Value	N/A			5% Lilliefors Critical Value			N/A
257	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
258												
259	Assuming Normal Distribution						Assuming Lognormal Distribution					
260					DL/2 Substitution Method				DL/2 Substitution Method			
261					Mean	0.00277			Mean			-5.914
262					SD	0.0007361			SD			0.203
263					95% DL/2 (t) UCL	0.00294			95% H-Stat (DL/2) UCL			0.00289
264												
265					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			

	A	B	C	D	E	F	G	H	I	J	K	L
266	MLE method failed to converge properly										Mean in Log Scale	N/A
267											SD in Log Scale	N/A
268											Mean in Original Scale	N/A
269											SD in Original Scale	N/A
270											95% Percentile Bootstrap UCL	N/A
271											95% BCA Bootstrap UCL	N/A
272												
273	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
274					k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)					
275					Theta Star	N/A						
276					nu star	N/A						
277												
278					A-D Test Statistic	0.359	Nonparametric Statistics					
279					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
280					K-S Test Statistic	N/A					Mean	0.00384
281					5% K-S Critical Value	N/A					SD	0.0002598
282	Data not Gamma Distributed at 5% Significance Level										SE of Mean	5.358E-05
283											95% KM (t) UCL	0.00393
284	Assuming Gamma Distribution										95% KM (z) UCL	0.00393
285					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.00501
286					Minimum	N/A					95% KM (bootstrap t) UCL	0.00384
287					Maximum	N/A					95% KM (BCA) UCL	0.0056
288					Mean	N/A					95% KM (Percentile Bootstrap) UCL	0.0056
289					Median	N/A					95% KM (Chebyshev) UCL	0.00407
290					SD	N/A					97.5% KM (Chebyshev) UCL	0.00417
291					k star	N/A					99% KM (Chebyshev) UCL	0.00437
292					Theta star	N/A						
293					Nu star	N/A	Potential UCLs to Use					
294					AppChi2	N/A					95% KM (t) UCL	0.00393
295					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	0.0056
296					95% Adjusted Gamma UCL	N/A						
297	Note: DL/2 is not a recommended method.											
298												
299												
300	4,4'-DDT											
301												
302					General Statistics							
303					Number of Valid Data	51					Number of Detected Data	1
304					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
305											Percent Non-Detects	98.04%
306												
307	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
308	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
309												
310	The data set for variable 4,4'-DDT was not processed!											
311												
312												
313												
314	4-Chloroaniline											
315												
316					General Statistics							
317					Number of Valid Data	51					Number of Detected Data	1
318					Number of Distinct Detected Data	1					Number of Non-Detect Data	50

	A	B	C	D	E	F	G	H	I	J	K	L
319										Percent Non-Detects		98.04%
320												
321	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
322	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
323												
324	The data set for variable 4-Chloroaniline was not processed!											
325												
326												
327												
328	Aldrin											
329												
330	General Statistics											
331					Number of Valid Data	51				Number of Detected Data		1
332					Number of Distinct Detected Data	1				Number of Non-Detect Data		50
333										Percent Non-Detects		98.04%
334												
335	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
336	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
337												
338	The data set for variable Aldrin was not processed!											
339												
340												
341												
342	alpha-BHC											
343												
344	General Statistics											
345					Number of Valid Data	51				Number of Detected Data		1
346					Number of Distinct Detected Data	1				Number of Non-Detect Data		50
347										Percent Non-Detects		98.04%
348												
349	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
350	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
351												
352	The data set for variable alpha-BHC was not processed!											
353												
354												
355												
356	Aroclor-1248											
357												
358	General Statistics											
359					Number of Valid Data	51				Number of Detected Data		1
360					Number of Distinct Detected Data	1				Number of Non-Detect Data		50
361										Percent Non-Detects		98.04%
362												
363	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
364	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
365												
366	The data set for variable Aroclor-1248 was not processed!											
367												
368												
369												
370	Atrazine											
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372						General Statistics						
373					Number of Valid Data	51					Number of Detected Data	1
374					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
375											Percent Non-Detects	98.04%
376												
377					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
378	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
379												
380					The data set for variable Atrazine was not processed!							
381												
382												
383												
384	Benzaldehyde											
385												
386						General Statistics						
387					Number of Valid Data	51					Number of Detected Data	1
388					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
389											Percent Non-Detects	98.04%
390												
391					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
392	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
393												
394					The data set for variable Benzaldehyde was not processed!							
395												
396												
397												
398	Benzo(g,h,i)perylene											
399												
400						General Statistics						
401					Number of Valid Data	51					Number of Detected Data	1
402					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
403											Percent Non-Detects	98.04%
404												
405					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
406	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
407												
408					The data set for variable Benzo(g,h,i)perylene was not processed!							
409												
410												
411												
412	Bromodichloromethane											
413												
414						General Statistics						
415					Number of Valid Data	51					Number of Detected Data	0
416					Number of Distinct Detected Data	0					Number of Non-Detect Data	51
417											Percent Non-Detects	100.00%
418												
419					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
420					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
421					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
422												
423					The data set for variable Bromodichloromethane was not processed!							
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426												
427	**Carbazole**											
428												
429						**General Statistics**						
430					Number of Valid Data	16				Number of Detected Data		1
431					Number of Distinct Detected Data	1				Number of Non-Detect Data		15
432										Percent Non-Detects		93.75%
433												
434					**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**							
435					**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**							
436												
437					**The data set for variable Carbazole was not processed!**							
438												
439												
440												
441	**Chloroethane**											
442												
443						**General Statistics**						
444					Number of Valid Data	51				Number of Detected Data		1
445					Number of Distinct Detected Data	1				Number of Non-Detect Data		50
446										Percent Non-Detects		98.04%
447												
448					**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**							
449					**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**							
450												
451					**The data set for variable Chloroethane was not processed!**							
452												
453												
454												
455	**Cobalt**											
456												
457						**General Statistics**						
458					Number of Valid Data	51				Number of Detected Data		15
459					Number of Distinct Detected Data	14				Number of Non-Detect Data		36
460										Percent Non-Detects		70.59%
461												
462					**Raw Statistics**					**Log-transformed Statistics**		
463					Minimum Detected	0.24				Minimum Detected		-1.427
464					Maximum Detected	33				Maximum Detected		3.497
465					Mean of Detected	4.622				Mean of Detected		0.492
466					SD of Detected	8.545				SD of Detected		1.393
467					Minimum Non-Detect	0.1				Minimum Non-Detect		-2.303
468					Maximum Non-Detect	50				Maximum Non-Detect		3.912
469												
470					Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect		51
471					For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected		0
472					Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage		100.00%
473												
474						**UCL Statistics**						
475					**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**		
476					Lilliefors Test Statistic	0.552				Lilliefors Test Statistic		0.925
477					5% Lilliefors Critical Value	0.881				5% Lilliefors Critical Value		0.881

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
479												
480	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
481					DL/2 Substitution Method						DL/2 Substitution Method	
482					Mean	18.03					Mean	2.187
483					SD	10.97					SD	1.752
484					95% DL/2 (t) UCL	20.6					95% H-Stat (DL/2) UCL	128.2
485												
486				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
487	**MLE method failed to converge properly**										Mean in Log Scale	0.123
488											SD in Log Scale	1.676
489											Mean in Original Scale	3.988
490											SD in Original Scale	7.566
491											95% Percentile Bootstrap UCL	5.862
492											95% BCA Bootstrap UCL	6.347
493												
494	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
495					k star (bias corrected)	0.521	**Data appear Lognormal at 5% Significance Level**					
496					Theta Star	8.876						
497					nu star	15.62						
498												
499					A-D Test Statistic	1.126	**Nonparametric Statistics**					
500					5% A-D Critical Value	0.786					Kaplan-Meier (KM) Method	
501					K-S Test Statistic	0.786					Mean	4.106
502					5% K-S Critical Value	0.232					SD	7.882
503	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1.979
504											95% KM (t) UCL	7.423
505	**Assuming Gamma Distribution**										95% KM (z) UCL	7.361
506				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	7.458
507					Minimum	1E-09					95% KM (bootstrap t) UCL	13.84
508					Maximum	33					95% KM (BCA) UCL	7.598
509					Mean	6.189					95% KM (Percentile Bootstrap) UCL	7.629
510					Median	2.591					95% KM (Chebyshev) UCL	12.73
511					SD	7.994					97.5% KM (Chebyshev) UCL	16.46
512					k star	0.142					99% KM (Chebyshev) UCL	23.79
513					Theta star	43.64						
514					Nu star	14.46	**Potential UCLs to Use**					
515					AppChi2	6.89					95% KM (BCA) UCL	7.598
516					95% Gamma Approximate UCL	12.99						
517					95% Adjusted Gamma UCL	13.29						
518	**Note: DL/2 is not a recommended method.**											
519												
520												
521	**Dibenzofuran**											
522												
523					**General Statistics**							
524					Number of Valid Data	51					Number of Detected Data	2
525					Number of Distinct Detected Data	2					Number of Non-Detect Data	49
526											Percent Non-Detects	96.08%
527												
528				**Raw Statistics**						**Log-transformed Statistics**		
529					Minimum Detected	0.32					Minimum Detected	-1.139
530					Maximum Detected	0.42					Maximum Detected	-0.868

	A	B	C	D	E	F	G	H	I	J	K	L
531					Mean of Detected	0.37					Mean of Detected	-1.003
532					SD of Detected	0.0707					SD of Detected	0.192
533					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
534					Maximum Non-Detect	5					Maximum Non-Detect	1.609
535												
536	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	51
537	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
538	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
539												
540	**Warning: Data set has only 2 Distinct Detected Values.**											
541	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
542	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
543												
544	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
545												
546	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
547	**Those methods will return a 'N/A' value on your output display!**											
548												
549	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
550	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
551												
552												
553	**UCL Statistics**											
554	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
555					Lilliefors Test Statistic	1					Lilliefors Test Statistic	1
556					5% Lilliefors Critical Value	N/A					5% Lilliefors Critical Value	N/A
557	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
558												
559	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
560					DL/2 Substitution Method						DL/2 Substitution Method	
561					Mean	1.805					Mean	0.231
562					SD	1.039					SD	1.026
563					95% DL/2 (t) UCL	2.048					95% H-Stat (DL/2) UCL	3.164
564												
565					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
566	**MLE method failed to converge properly**										Mean in Log Scale	N/A
567											SD in Log Scale	N/A
568											Mean in Original Scale	N/A
569											SD in Original Scale	N/A
570											95% Percentile Bootstrap UCL	N/A
571											95% BCA Bootstrap UCL	N/A
572												
573	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
574					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
575					Theta Star	N/A						
576					nu star	N/A						
577												
578					A-D Test Statistic	0.359	**Nonparametric Statistics**					
579					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
580					K-S Test Statistic	N/A					Mean	0.37
581					5% K-S Critical Value	N/A					SD	0.05
582	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.05
583											95% KM (t) UCL	0.454

	A	B	C	D	E	F	G	H	I	J	K	L
584				Assuming Gamma Distribution							95% KM (z) UCL	0.452
585				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.487
586					Minimum	N/A					95% KM (bootstrap t) UCL	0.47
587					Maximum	N/A					95% KM (BCA) UCL	N/A
588					Mean	N/A					95% KM (Percentile Bootstrap) UCL	0.42
589					Median	N/A					95% KM (Chebyshev) UCL	0.588
590					SD	N/A					97.5% KM (Chebyshev) UCL	0.682
591					k star	N/A					99% KM (Chebyshev) UCL	0.867
592					Theta star	N/A						
593					Nu star	N/A			Potential UCLs to Use			
594					AppChi2	N/A					95% KM (t) UCL	0.454
595					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	0.42
596					95% Adjusted Gamma UCL	N/A						
597				Warning: Recommended UCL exceeds the maximum observation								
598	Note: DL/2 is not a recommended method.											
599												
600												
601	Dieldrin											
602												
603				General Statistics								
604					Number of Valid Data	51					Number of Detected Data	0
605					Number of Distinct Detected Data	0					Number of Non-Detect Data	51
606											Percent Non-Detects	100.00%
607												
608				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
609				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
610				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
611												
612				The data set for variable Dieldrin was not processed!								
613												
614												
615												
616	Endosulfan Sulfate											
617												
618				General Statistics								
619					Number of Valid Data	51					Number of Detected Data	0
620					Number of Distinct Detected Data	0					Number of Non-Detect Data	51
621											Percent Non-Detects	100.00%
622												
623				Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!								
624				Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!								
625				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
626												
627				The data set for variable Endosulfan Sulfate was not processed!								
628												
629												
630												
631	Ethylbenzene											
632												
633				General Statistics								
634					Number of Valid Data	51					Number of Detected Data	5
635					Number of Distinct Detected Data	5					Number of Non-Detect Data	46
636											Percent Non-Detects	90.20%

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	**Raw Statistics**						**Log-transformed Statistics**					
639					Minimum Detected	0.22					Minimum Detected	-1.514
640					Maximum Detected	17					Maximum Detected	2.833
641					Mean of Detected	4.004					Mean of Detected	0.148
642					SD of Detected	7.28					SD of Detected	1.671
643					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
644					Maximum Non-Detect	0.5					Maximum Non-Detect	-0.693
645												
646												
647	**Warning: There are only 5 Detected Values in this data**											
648	**Note: It should be noted that even though bootstrap may be performed on this data set**											
649	**the resulting calculations may not be reliable enough tp draw conclusions**											
650												
651	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
652												
653												
654	**UCL Statistics**											
655	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
656					Lilliefors Test Statistic	0.612					Lilliefors Test Statistic	0.912
657					5% Lilliefors Critical Value	0.762					5% Lilliefors Critical Value	0.762
658	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
659												
660	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
661					DL/2 Substitution Method						DL/2 Substitution Method	
662					Mean	0.618					Mean	-1.236
663					SD	2.348					SD	0.66
664					95% DL/2 (t) UCL	1.169					95% H-Stat (DL/2) UCL	0.395
665												
666					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
667	**MLE yields a negative mean**										Mean in Log Scale	-1.212
668											SD in Log Scale	1.178
669											Mean in Original Scale	0.76
670											SD in Original Scale	2.354
671											95% Percentile Bootstrap UCL	1.391
672											95% BCA Bootstrap UCL	1.849
673												
674	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
675					k star (bias corrected)	0.338	**Data appear Gamma Distributed at 5% Significance Level**					
676					Theta Star	11.86						
677					nu star	3.376						
678												
679					A-D Test Statistic	0.604	**Nonparametric Statistics**					
680					5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method	
681					K-S Test Statistic	0.71					Mean	0.672
682					5% K-S Critical Value	0.371					SD	2.318
683	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.369
684											95% KM (t) UCL	1.29
685	**Assuming Gamma Distribution**										95% KM (z) UCL	1.279
686					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.256
687					Minimum	1E-09					95% KM (bootstrap t) UCL	4.246
688					Maximum	17					95% KM (BCA) UCL	2.012
689					Mean	2.714					95% KM (Percentile Bootstrap) UCL	1.66

	A	B	C	D	E	F	G	H	I	J	K	L
690					Median	2.47				95% KM (Chebyshev) UCL		2.279
691					SD	2.976				97.5% KM (Chebyshev) UCL		2.975
692					k star	0.129				99% KM (Chebyshev) UCL		4.341
693					Theta star	21.03						
694					Nu star	13.17				**Potential UCLs to Use**		
695					AppChi2	6.005				95% KM (t) UCL		1.29
696				95% Gamma Approximate UCL		5.951						
697				95% Adjusted Gamma UCL		6.094						
698	**Note: DL/2 is not a recommended method.**											
699												
700												
701	**Gamma-BHC**											
702												
703					**General Statistics**							
704				Number of Valid Data		51				Number of Detected Data		2
705				Number of Distinct Detected Data		2				Number of Non-Detect Data		49
706										Percent Non-Detects		96.08%
707												
708				**Raw Statistics**						**Log-transformed Statistics**		
709				Minimum Detected		0.008				Minimum Detected		-4.828
710				Maximum Detected		0.016				Maximum Detected		-4.135
711				Mean of Detected		0.012				Mean of Detected		-4.482
712				SD of Detected		0.00566				SD of Detected		0.49
713				Minimum Non-Detect		0.0025				Minimum Non-Detect		-5.991
714				Maximum Non-Detect		0.01				Maximum Non-Detect		-4.605
715												
716	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		50
717	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		1
718	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		98.04%
719												
720	**Warning: Data set has only 2 Distinct Detected Values.**											
721	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
722	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
723												
724	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
725												
726	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
727	**Those methods will return a 'N/A' value on your output display!**											
728												
729	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
730	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
731												
732												
733					**UCL Statistics**							
734				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
735				Lilliefors Test Statistic		1				Lilliefors Test Statistic		1
736				5% Lilliefors Critical Value		N/A				5% Lilliefors Critical Value		N/A
737				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
738												
739				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
740				DL/2 Substitution Method						DL/2 Substitution Method		
741				Mean		0.0022				Mean		-6.355
742				SD		0.00237				SD		0.573

	A	B	C	D	E	F	G	H	I	J	K	L
743					95% DL/2 (t) UCL	0.00275					95% H-Stat (DL/2) UCL	0.00227
744												
745				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
746			**MLE method failed to converge properly**								Mean in Log Scale	N/A
747											SD in Log Scale	N/A
748											Mean in Original Scale	N/A
749											SD in Original Scale	N/A
750											95% Percentile Bootstrap UCL	N/A
751											95% BCA Bootstrap UCL	N/A
752												
753			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
754					k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**			
755					Theta Star	N/A						
756					nu star	N/A						
757												
758					A-D Test Statistic	0.359			**Nonparametric Statistics**			
759					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
760					K-S Test Statistic	N/A					Mean	0.00816
761					5% K-S Critical Value	N/A					SD	0.00111
762			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	0.0002197
763											95% KM (t) UCL	0.00852
764			**Assuming Gamma Distribution**								95% KM (z) UCL	0.00852
765					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0134
766					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
767					Maximum	N/A					95% KM (BCA) UCL	0.016
768					Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A
769					Median	N/A					95% KM (Chebyshev) UCL	0.00911
770					SD	N/A					97.5% KM (Chebyshev) UCL	0.00953
771					k star	N/A					99% KM (Chebyshev) UCL	0.0103
772					Theta star	N/A						
773					Nu star	N/A			**Potential UCLs to Use**			
774					AppChi2	N/A					95% KM (t) UCL	0.00852
775					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	N/A
776					95% Adjusted Gamma UCL	N/A						
777	**Note: DL/2 is not a recommended method.**											
778												
779												
780	**Heptachlor**											
781												
782						**General Statistics**						
783					Number of Valid Data	51					Number of Detected Data	1
784					Number of Distinct Detected Data	1					Number of Non-Detect Data	50
785											Percent Non-Detects	98.04%
786												
787			**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**									
788	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
789												
790					**The data set for variable Heptachlor was not processed!**							
791												
792												
793												
794	**Methyl tert butyl ether**											
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	General Statistics											
797					Number of Valid Data	51					Number of Detected Data	10
798					Number of Distinct Detected Data	10					Number of Non-Detect Data	41
799											Percent Non-Detects	80.39%
800												
801	Raw Statistics						Log-transformed Statistics					
802					Minimum Detected	0.23					Minimum Detected	-1.47
803					Maximum Detected	21					Maximum Detected	3.045
804					Mean of Detected	2.714					Mean of Detected	-0.276
805					SD of Detected	6.447					SD of Detected	1.36
806					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
807					Maximum Non-Detect	0.5					Maximum Non-Detect	-0.693
808												
809												
810	UCL Statistics											
811	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
812					Lilliefors Test Statistic	0.432					Lilliefors Test Statistic	0.804
813					5% Lilliefors Critical Value	0.842					5% Lilliefors Critical Value	0.842
814	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
815												
816	Assuming Normal Distribution						Assuming Lognormal Distribution					
817					DL/2 Substitution Method						DL/2 Substitution Method	
818					Mean	0.733					Mean	-1.169
819					SD	2.908					SD	0.729
820					95% DL/2 (t) UCL	1.415					95% H-Stat (DL/2) UCL	0.44
821												
822					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
823	MLE yields a negative mean										Mean in Log Scale	-1.038
824											SD in Log Scale	0.991
825											Mean in Original Scale	0.843
826											SD in Original Scale	2.9
827											95% Percentile Bootstrap UCL	1.657
828											95% BCA Bootstrap UCL	2.099
829												
830	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
831					k star (bias corrected)	0.416	Data do not follow a Discernable Distribution (0.05)					
832					Theta Star	6.528						
833					nu star	8.314						
834												
835					A-D Test Statistic	1.569	Nonparametric Statistics					
836					5% A-D Critical Value	0.777					Kaplan-Meier (KM) Method	
837					K-S Test Statistic	0.777					Mean	0.783
838					5% K-S Critical Value	0.281					SD	2.872
839	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.425
840											95% KM (t) UCL	1.494
841	Assuming Gamma Distribution										95% KM (z) UCL	1.481
842					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.465
843					Minimum	1E-09					95% KM (bootstrap t) UCL	6.229
844					Maximum	21					95% KM (BCA) UCL	1.622
845					Mean	2.105					95% KM (Percentile Bootstrap) UCL	1.587
846					Median	1.7					95% KM (Chebyshev) UCL	2.634
847					SD	3.035					97.5% KM (Chebyshev) UCL	3.434
848					k star	0.187					99% KM (Chebyshev) UCL	5.007

	A	B	C	D	E	F	G	H	I	J	K	L
849					Theta star	11.23						
850					Nu star	19.12	**Potential UCLs to Use**					
851					AppChi2	10.2					95% KM (BCA) UCL	1.622
852				95% Gamma Approximate UCL		3.944						
853				95% Adjusted Gamma UCL		4.019						
854	**Note: DL/2 is not a recommended method.**											
855												
856												
857	**Silver**											
858												
859					**General Statistics**							
860					Number of Valid Data	51					Number of Detected Data	5
861					Number of Distinct Detected Data	5					Number of Non-Detect Data	46
862											Percent Non-Detects	90.20%
863												
864				**Raw Statistics**						**Log-transformed Statistics**		
865					Minimum Detected	0.21					Minimum Detected	-1.561
866					Maximum Detected	13.7					Maximum Detected	2.617
867					Mean of Detected	7.282					Mean of Detected	1.402
868					SD of Detected	5.058					SD of Detected	1.692
869					Minimum Non-Detect	0.1					Minimum Non-Detect	-2.303
870					Maximum Non-Detect	10					Maximum Non-Detect	2.303
871												
872	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	49
873	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	2
874	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.08%
875												
876	**Warning: There are only 5 Detected Values in this data**											
877	**Note: It should be noted that even though bootstrap may be performed on this data set**											
878	**the resulting calculations may not be reliable enough tp draw conclusions**											
879												
880	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
881												
882												
883					**UCL Statistics**							
884				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
885					Lilliefors Test Statistic	0.973					Lilliefors Test Statistic	0.737
886					5% Lilliefors Critical Value	0.762					5% Lilliefors Critical Value	0.762
887				**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
888												
889				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
890					DL/2 Substitution Method						DL/2 Substitution Method	
891					Mean	3.203					Mean	-0.144
892					SD	3.064					SD	2.169
893					95% DL/2 (t) UCL	3.922					95% H-Stat (DL/2) UCL	27.48
894												
895					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
896				**MLE method failed to converge properly**							Mean in Log Scale	-3.159
897											SD in Log Scale	2.63
898											Mean in Original Scale	0.868
899											SD in Original Scale	2.6
900											95% Percentile Bootstrap UCL	1.514
901											95% BCA Bootstrap UCL	1.689

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
904					k star (bias corrected)	0.53	Data appear Normal at 5% Significance Level					
905					Theta Star	13.75						
906					nu star	5.297						
907												
908					A-D Test Statistic	0.585	Nonparametric Statistics					
909					5% A-D Critical Value	0.692					Kaplan-Meier (KM) Method	
910					K-S Test Statistic	0.692					Mean	1.146
911					5% K-S Critical Value	0.364					SD	2.734
912	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.499
913											95% KM (t) UCL	1.983
914	Assuming Gamma Distribution										95% KM (z) UCL	1.967
915				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	4.593
916					Minimum	0.21					95% KM (bootstrap t) UCL	1.734
917					Maximum	141.8					95% KM (BCA) UCL	10.27
918					Mean	43.45					95% KM (Percentile Bootstrap) UCL	6.965
919					Median	31.34					95% KM (Chebyshev) UCL	3.323
920					SD	39.34					97.5% KM (Chebyshev) UCL	4.265
921					k star	0.895					99% KM (Chebyshev) UCL	6.115
922					Theta star	48.57						
923					Nu star	91.26	Potential UCLs to Use					
924					AppChi2	70.23					95% KM (t) UCL	1.983
925					95% Gamma Approximate UCL	56.46					95% KM (Percentile Bootstrap) UCL	6.965
926					95% Adjusted Gamma UCL	56.89						
927	Note: DL/2 is not a recommended method.											
928												
929												
930	Tetrachloroethene											
931												
932					General Statistics							
933					Number of Valid Data	51					Number of Detected Data	0
934					Number of Distinct Detected Data	0					Number of Non-Detect Data	51
935											Percent Non-Detects	100.00%
936												
937	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
938	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
939	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
940												
941	The data set for variable Tetrachloroethene was not processed!											
942												
943												
944												
945	Toluene											
946												
947					General Statistics							
948					Number of Valid Data	51					Number of Detected Data	7
949					Number of Distinct Detected Data	7					Number of Non-Detect Data	44
950											Percent Non-Detects	86.27%
951												
952	Raw Statistics						Log-transformed Statistics					
953					Minimum Detected	0.22					Minimum Detected	-1.514
954					Maximum Detected	4.9					Maximum Detected	1.589

	A	B	C	D	E	F	G	H	I	J	K	L
955					Mean of Detected	1.45					Mean of Detected	-0.263
956					SD of Detected	1.802					SD of Detected	1.192
957					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
958					Maximum Non-Detect	0.5					Maximum Non-Detect	-0.693
959												
960												
961					Warning: There are only 7 Detected Values in this data							
962					Note: It should be noted that even though bootstrap may be performed on this data set							
963					the resulting calculations may not be reliable enough tp draw conclusions							
964												
965					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
966												
967												
968					UCL Statistics							
969					Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only	
970					Lilliefors Test Statistic	0.732					Lilliefors Test Statistic	0.885
971					5% Lilliefors Critical Value	0.803					5% Lilliefors Critical Value	0.803
972					Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
973												
974					Assuming Normal Distribution						Assuming Lognormal Distribution	
975					DL/2 Substitution Method						DL/2 Substitution Method	
976					Mean	0.415					Mean	-1.232
977					SD	0.751					SD	0.568
978					95% DL/2 (t) UCL	0.591					95% H-Stat (DL/2) UCL	0.38
979												
980					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
981					MLE yields a negative mean						Mean in Log Scale	-1.482
982											SD in Log Scale	1.006
983											Mean in Original Scale	0.418
984											SD in Original Scale	0.771
985											95% Percentile Bootstrap UCL	0.612
986											95% BCA Bootstrap UCL	0.694
987												
988					Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only	
989					k star (bias corrected)	0.62					Data Follow Appr. Gamma Distribution at 5% Significance Level	
990					Theta Star	2.339						
991					nu star	8.68						
992												
993					A-D Test Statistic	0.619					Nonparametric Statistics	
994					5% A-D Critical Value	0.73					Kaplan-Meier (KM) Method	
995					K-S Test Statistic	0.73					Mean	0.393
996					5% K-S Critical Value	0.321					SD	0.748
997					Data follow Appr. Gamma Distribution at 5% Significance Level						SE of Mean	0.113
998											95% KM (t) UCL	0.583
999					Assuming Gamma Distribution						95% KM (z) UCL	0.579
1000					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.571
1001					Minimum	1E-09					95% KM (bootstrap t) UCL	1.485
1002					Maximum	4.9					95% KM (BCA) UCL	0.843
1003					Mean	0.857					95% KM (Percentile Bootstrap) UCL	0.721
1004					Median	0.68					95% KM (Chebyshev) UCL	0.887
1005					SD	0.925					97.5% KM (Chebyshev) UCL	1.1
1006					k star	0.143					99% KM (Chebyshev) UCL	1.52
1007					Theta star	5.984						

	A	B	C	D	E	F	G	H	I	J	K	L
1008					Nu star	14.61	Potential UCLs to Use					
1009					AppChi2	6.989					95% KM (t) UCL	0.583
1010				95% Gamma Approximate UCL		1.791						
1011				95% Adjusted Gamma UCL		1.831						
1012	Note: DL/2 is not a recommended method.											
1013												
1014												
1015	Trichloroethene											
1016												
1017					General Statistics							
1018					Number of Valid Data	51					Number of Detected Data	2
1019					Number of Distinct Detected Data	2					Number of Non-Detect Data	49
1020											Percent Non-Detects	96.08%
1021												
1022				Raw Statistics						Log-transformed Statistics		
1023					Minimum Detected	0.55					Minimum Detected	-0.598
1024					Maximum Detected	1.2					Maximum Detected	0.182
1025					Mean of Detected	0.875					Mean of Detected	-0.208
1026					SD of Detected	0.46					SD of Detected	0.552
1027					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
1028					Maximum Non-Detect	5					Maximum Non-Detect	1.609
1029												
1030	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	51
1031	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
1032	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
1033												
1034					Warning: Data set has only 2 Distinct Detected Values.							
1035					This may not be adequate enough to compute meaningful and reliable test statistics and estimates.							
1036					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
1037												
1038					Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.							
1039												
1040					The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.							
1041					Those methods will return a 'N/A' value on your output display!							
1042												
1043					It is necessary to have 4 or more Distinct Values for bootstrap methods.							
1044					It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.							
1045												
1046												
1047					UCL Statistics							
1048				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1049					Lilliefors Test Statistic	1					Lilliefors Test Statistic	1
1050					5% Lilliefors Critical Value	N/A					5% Lilliefors Critical Value	N/A
1051				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
1052												
1053				Assuming Normal Distribution						Assuming Lognormal Distribution		
1054					DL/2 Substitution Method						DL/2 Substitution Method	
1055					Mean	0.319					Mean	-1.295
1056					SD	0.341					SD	0.399
1057					95% DL/2 (t) UCL	0.399					95% H-Stat (DL/2) UCL	0.32
1058												
1059					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
1060					MLE method failed to converge properly						Mean in Log Scale	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
1061											SD in Log Scale	N/A
1062											Mean in Original Scale	N/A
1063											SD in Original Scale	N/A
1064											95% Percentile Bootstrap UCL	N/A
1065											95% BCA Bootstrap UCL	N/A
1066												
1067			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
1068					k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**			
1069					Theta Star	N/A						
1070					nu star	N/A						
1071												
1072					A-D Test Statistic	0.359			**Nonparametric Statistics**			
1073					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
1074					K-S Test Statistic	N/A					Mean	0.563
1075					5% K-S Critical Value	N/A					SD	0.091
1076			**Data not Gamma Distributed at 5% Significance Level**								SE of Mean	0.0182
1077											95% KM (t) UCL	0.594
1078			**Assuming Gamma Distribution**								95% KM (z) UCL	0.593
1079					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.986
1080					Minimum	N/A					95% KM (bootstrap t) UCL	0.563
1081					Maximum	N/A					95% KM (BCA) UCL	1.2
1082					Mean	N/A					95% KM (Percentile Bootstrap) UCL	1.2
1083					Median	N/A					95% KM (Chebyshev) UCL	0.642
1084					SD	N/A					97.5% KM (Chebyshev) UCL	0.677
1085					k star	N/A					99% KM (Chebyshev) UCL	0.744
1086					Theta star	N/A						
1087					Nu star	N/A			**Potential UCLs to Use**			
1088					AppChi2	N/A					95% KM (t) UCL	0.594
1089					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	1.2
1090					95% Adjusted Gamma UCL	N/A						
1091	**Note: DL/2 is not a recommended method.**											
1092												
1093												
1094	**Vinyl Chloride**											
1095												
1096					**General Statistics**							
1097					Number of Valid Data	51					Number of Detected Data	3
1098					Number of Distinct Detected Data	3					Number of Non-Detect Data	48
1099											Percent Non-Detects	94.12%
1100												
1101					**Raw Statistics**				**Log-transformed Statistics**			
1102					Minimum Detected	0.59					Minimum Detected	-0.528
1103					Maximum Detected	1.2					Maximum Detected	0.182
1104					Mean of Detected	0.88					Mean of Detected	-0.169
1105					SD of Detected	0.306					SD of Detected	0.355
1106					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
1107					Maximum Non-Detect	5					Maximum Non-Detect	1.609
1108												
1109	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	51
1110	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
1111	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
1112												
1113					**Warning: There are only 3 Distinct Detected Values in this data set**							

	A	B	C	D	E	F	G	H	I	J	K	L
1114	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
1115	Those methods will return a 'N/A' value on your output display!											
1116												
1117	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
1118	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
1119												
1120												
1121	UCL Statistics											
1122	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1123					Lilliefors Test Statistic	0.993				Lilliefors Test Statistic		1
1124					5% Lilliefors Critical Value	0.767				5% Lilliefors Critical Value		0.767
1125	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1126												
1127	Assuming Normal Distribution						Assuming Lognormal Distribution					
1128					DL/2 Substitution Method					DL/2 Substitution Method		
1129					Mean	0.331				Mean		-1.27
1130					SD	0.349				SD		0.431
1131					95% DL/2 (t) UCL	0.413				95% H-Stat (DL/2) UCL		0.332
1132												
1133					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
1134	MLE method failed to converge properly									Mean in Log Scale		-2.976
1135										SD in Log Scale		1.39
1136										Mean in Original Scale		0.128
1137										SD in Original Scale		0.218
1138										95% Percentile Bootstrap UCL		0.184
1139										95% BCA Bootstrap UCL		0.197
1140												
1141	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1142					k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level					
1143					Theta Star	N/A						
1144					nu star	N/A						
1145												
1146					A-D Test Statistic	0.246	Nonparametric Statistics					
1147					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
1148					K-S Test Statistic	N/A				Mean		0.607
1149					5% K-S Critical Value	N/A				SD		0.0921
1150	Data not Gamma Distributed at 5% Significance Level									SE of Mean		0.016
1151										95% KM (t) UCL		0.634
1152	Assuming Gamma Distribution									95% KM (z) UCL		0.634
1153					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.774
1154					Minimum	N/A				95% KM (bootstrap t) UCL		0.622
1155					Maximum	N/A				95% KM (BCA) UCL		1.2
1156					Mean	N/A				95% KM (Percentile Bootstrap) UCL		1.2
1157					Median	N/A				95% KM (Chebyshev) UCL		0.677
1158					SD	N/A				97.5% KM (Chebyshev) UCL		0.707
1159					k star	N/A				99% KM (Chebyshev) UCL		0.766
1160					Theta star	N/A						
1161					Nu star	N/A	Potential UCLs to Use					
1162					AppChi2	N/A				95% KM (t) UCL		0.634
1163					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		1.2
1164					95% Adjusted Gamma UCL	N/A						
1165	Note: DL/2 is not a recommended method.											
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Data	15			Number of Detected Data		14
13						Number of Distinct Detected Data	14			Number of Non-Detect Data		1
14										Percent Non-Detects		6.67%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.0065			Minimum Detected		-5.036
18						Maximum Detected	0.84			Maximum Detected		-0.174
19						Mean of Detected	0.384			Mean of Detected		-1.48
20						SD of Detected	0.295			SD of Detected		1.374
21						Minimum Non-Detect	0.0023			Minimum Non-Detect		-6.075
22						Maximum Non-Detect	0.0023			Maximum Non-Detect		-6.075
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.911			Shapiro Wilk Test Statistic		0.852
28						5% Shapiro Wilk Critical Value	0.874			5% Shapiro Wilk Critical Value		0.874
29				Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	0.359			Mean		-1.833
34						SD	0.301			SD		1.902
35						95% DL/2 (t) UCL	0.496			95% H-Stat (DL/2) UCL		4.834
36												
37						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
38						Mean	0.348			Mean in Log Scale		-1.684
39						SD	0.307			SD in Log Scale		1.542
40						95% MLE (t) UCL	0.488			Mean in Original Scale		0.359
41						95% MLE (Tiku) UCL	0.485			SD in Original Scale		0.3
42										95% Percentile Bootstrap UCL		0.49
43										95% BCA Bootstrap UCL		0.493
44												
45				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
46						k star (bias corrected)	0.905			Data appear Normal at 5% Significance Level		
47						Theta Star	0.424					
48						nu star	25.35					
49												
50						A-D Test Statistic	0.366			Nonparametric Statistics		
51						5% A-D Critical Value	0.758			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	0.758			Mean		0.359
53						5% K-S Critical Value	0.235			SD		0.29

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0778
55											95% KM (t) UCL	0.496
56	Assuming Gamma Distribution										95% KM (z) UCL	0.487
57				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.495
58					Minimum	1E-09					95% KM (bootstrap t) UCL	0.514
59					Maximum	0.84					95% KM (BCA) UCL	0.501
60					Mean	0.359					95% KM (Percentile Bootstrap) UCL	0.49
61					Median	0.31					95% KM (Chebyshev) UCL	0.698
62					SD	0.301					97.5% KM (Chebyshev) UCL	0.845
63					k star	0.35					99% KM (Chebyshev) UCL	1.133
64					Theta star	1.025						
65					Nu star	10.49	Potential UCLs to Use					
66					AppChi2	4.252					95% KM (t) UCL	0.496
67					95% Gamma Approximate UCL	0.885					95% KM (Percentile Bootstrap) UCL	0.49
68					95% Adjusted Gamma UCL	0.997						
69	Note: DL/2 is not a recommended method.											
70												
71												
72	Carbazole											
73												
74					General Statistics							
75					Number of Valid Data	15					Number of Detected Data	8
76					Number of Distinct Detected Data	8					Number of Non-Detect Data	7
77											Percent Non-Detects	46.67%
78												
79				Raw Statistics						Log-transformed Statistics		
80					Minimum Detected	0.055					Minimum Detected	-2.9
81					Maximum Detected	0.88					Maximum Detected	-0.128
82					Mean of Detected	0.242					Mean of Detected	-1.88
83					SD of Detected	0.286					SD of Detected	0.956
84					Minimum Non-Detect	0.33					Minimum Non-Detect	-1.109
85					Maximum Non-Detect	0.61					Maximum Non-Detect	-0.494
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
88	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
89	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.33%
90												
91	Warning: There are only 8 Detected Values in this data											
92	Note: It should be noted that even though bootstrap may be performed on this data set											
93	the resulting calculations may not be reliable enough tp draw conclusions											
94												
95	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
96												
97												
98					UCL Statistics							
99	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
100					Shapiro Wilk Test Statistic	0.7					Shapiro Wilk Test Statistic	0.895
101					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
102	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
103												
104	Assuming Normal Distribution						Assuming Lognormal Distribution					
105					DL/2 Substitution Method						DL/2 Substitution Method	
106					Mean	0.229					Mean	-1.728

	A	B	C	D	E	F	G	H	I	J	K	L
107					SD	0.205					SD	0.708
108					95% DL/2 (t) UCL	0.323					95% H-Stat (DL/2) UCL	0.662
109												
110				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
111				**MLE method failed to converge properly**							Mean in Log Scale	-2.045
112											SD in Log Scale	0.713
113											Mean in Original Scale	0.18
114											SD in Original Scale	0.214
115											95% Percentile Bootstrap UCL	0.279
116											95% BCA Bootstrap UCL	0.334
117												
118				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
119					k star (bias corrected)	0.847				**Data appear Gamma Distributed at 5% Significance Level**		
120					Theta Star	0.286						
121					nu star	13.55						
122												
123					A-D Test Statistic	0.68				**Nonparametric Statistics**		
124					5% A-D Critical Value	0.732					Kaplan-Meier (KM) Method	
125					K-S Test Statistic	0.732					Mean	0.181
126					5% K-S Critical Value	0.3					SD	0.211
127				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0601
128											95% KM (t) UCL	0.287
129				**Assuming Gamma Distribution**							95% KM (z) UCL	0.28
130				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.284
131					Minimum	0.055					95% KM (bootstrap t) UCL	0.499
132					Maximum	0.88					95% KM (BCA) UCL	0.296
133					Mean	0.242					95% KM (Percentile Bootstrap) UCL	0.282
134					Median	0.241					95% KM (Chebyshev) UCL	0.443
135					SD	0.202					97.5% KM (Chebyshev) UCL	0.556
136					k star	1.785					99% KM (Chebyshev) UCL	0.779
137					Theta star	0.136						
138					Nu star	53.56				**Potential UCLs to Use**		
139					AppChi2	37.75					95% KM (BCA) UCL	0.296
140					95% Gamma Approximate UCL	0.344						
141					95% Adjusted Gamma UCL	0.36						
142	**Note: DL/2 is not a recommended method.**											
143												
144												
145	**Dibenzofuran**											
146												
147					**General Statistics**							
148					Number of Valid Data	15					Number of Detected Data	4
149					Number of Distinct Detected Data	4					Number of Non-Detect Data	11
150											Percent Non-Detects	73.33%
151												
152				**Raw Statistics**						**Log-transformed Statistics**		
153					Minimum Detected	0.044					Minimum Detected	-3.124
154					Maximum Detected	0.22					Maximum Detected	-1.514
155					Mean of Detected	0.127					Mean of Detected	-2.283
156					SD of Detected	0.0867					SD of Detected	0.789
157					Minimum Non-Detect	0.12					Minimum Non-Detect	-2.12
158					Maximum Non-Detect	0.61					Maximum Non-Detect	-0.494
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
161	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
162	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
163												
164	Warning: There are only 4 Distinct Detected Values in this data											
165	Note: It should be noted that even though bootstrap may be performed on this data set											
166	the resulting calculations may not be reliable enough tp draw conclusions											
167												
168	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
169												
170												
171	UCL Statistics											
172	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
173	Shapiro Wilk Test Statistic					0.878	Shapiro Wilk Test Statistic					0.884
174	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
175	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
176												
177	Assuming Normal Distribution						Assuming Lognormal Distribution					
178	DL/2 Substitution Method						DL/2 Substitution Method					
179	Mean					0.173	Mean					-1.893
180	SD					0.0774	SD					0.607
181	95% DL/2 (t) UCL					0.208	95% H-Stat (DL/2) UCL					0.338
182												
183	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
184	MLE method failed to converge properly						Mean in Log Scale					-2.507
185							SD in Log Scale					0.436
186							Mean in Original Scale					0.0902
187							SD in Original Scale					0.0485
188							95% Percentile Bootstrap UCL					0.112
189							95% BCA Bootstrap UCL					0.118
190												
191	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
192	k star (bias corrected)					0.784	Data appear Normal at 5% Significance Level					
193	Theta Star					0.161						
194	nu star					6.276						
195												
196	A-D Test Statistic					0.417	Nonparametric Statistics					
197	5% A-D Critical Value					0.66	Kaplan-Meier (KM) Method					
198	K-S Test Statistic					0.66	Mean					0.102
199	5% K-S Critical Value					0.397	SD					0.0706
200	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0335
201							95% KM (t) UCL					0.161
202	Assuming Gamma Distribution						95% KM (z) UCL					0.157
203	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.162
204	Minimum					0.044	95% KM (bootstrap t) UCL					0.166
205	Maximum					0.22	95% KM (BCA) UCL					0.197
206	Mean					0.132	95% KM (Percentile Bootstrap) UCL					0.193
207	Median					0.135	95% KM (Chebyshev) UCL					0.248
208	SD					0.0405	97.5% KM (Chebyshev) UCL					0.311
209	k star					7.027	99% KM (Chebyshev) UCL					0.435
210	Theta star					0.0187						
211	Nu star					210.8	Potential UCLs to Use					
212	AppChi2					178.2	95% KM (t) UCL					0.161

	A	B	C	D	E	F	G	H	I	J	K	L
213					95% Gamma Approximate UCL	0.156				95% KM (Percentile Bootstrap) UCL		0.193
214					95% Adjusted Gamma UCL	N/A						
215	Note: DL/2 is not a recommended method.											
216												
217												
218	Phenanthrene											
219												
220					General Statistics							
221					Number of Valid Data	15				Number of Detected Data		14
222					Number of Distinct Detected Data	13				Number of Non-Detect Data		1
223										Percent Non-Detects		6.67%
224												
225					Raw Statistics					Log-transformed Statistics		
226					Minimum Detected	0.0098				Minimum Detected		-4.625
227					Maximum Detected	4.6				Maximum Detected		1.526
228					Mean of Detected	1.045				Mean of Detected		-0.805
229					SD of Detected	1.31				SD of Detected		1.654
230					Minimum Non-Detect	0.0023				Minimum Non-Detect		-6.075
231					Maximum Non-Detect	0.0023				Maximum Non-Detect		-6.075
232												
233												
234					UCL Statistics							
235					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
236					Shapiro Wilk Test Statistic	0.736				Shapiro Wilk Test Statistic		0.929
237					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
238					Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
239												
240					Assuming Normal Distribution					Assuming Lognormal Distribution		
241					DL/2 Substitution Method					DL/2 Substitution Method		
242					Mean	0.976				Mean		-1.203
243					SD	1.291				SD		2.216
244					95% DL/2 (t) UCL	1.563				95% H-Stat (DL/2) UCL		31.26
245												
246					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
247					Mean	0.924				Mean in Log Scale		-1.064
248					SD	1.312				SD in Log Scale		1.882
249					95% MLE (t) UCL	1.521				Mean in Original Scale		0.976
250					95% MLE (Tiku) UCL	1.485				SD in Original Scale		1.291
251										95% Percentile Bootstrap UCL		1.538
252										95% BCA Bootstrap UCL		1.664
253												
254					Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only		
255					k star (bias corrected)	0.606				Data appear Gamma Distributed at 5% Significance Level		
256					Theta Star	1.726						
257					nu star	16.95						
258												
259					A-D Test Statistic	0.204				Nonparametric Statistics		
260					5% A-D Critical Value	0.774				Kaplan-Meier (KM) Method		
261					K-S Test Statistic	0.774				Mean		0.976
262					5% K-S Critical Value	0.238				SD		1.247
263					Data appear Gamma Distributed at 5% Significance Level					SE of Mean		0.334
264										95% KM (t) UCL		1.565
265					Assuming Gamma Distribution					95% KM (z) UCL		1.526

	A	B	C	D	E	F	G	H	I	J	K	L
266				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		1.562
267					Minimum	1E-09				95% KM (bootstrap t) UCL		2.291
268					Maximum	4.6				95% KM (BCA) UCL		1.534
269					Mean	0.976				95% KM (Percentile Bootstrap) UCL		1.529
270					Median	0.59				95% KM (Chebyshev) UCL		2.433
271					SD	1.291				97.5% KM (Chebyshev) UCL		3.063
272					k star	0.303				99% KM (Chebyshev) UCL		4.3
273					Theta star	3.221						
274					Nu star	9.088				**Potential UCLs to Use**		
275					AppChi2	3.38				95% KM (Chebyshev) UCL		2.433
276					95% Gamma Approximate UCL	2.623						
277					95% Adjusted Gamma UCL	2.991						
278	**Note: DL/2 is not a recommended method.**											
279												
280												
281	**Cobalt**											
282												
283					**General Statistics**							
284					Number of Valid Data	15				Number of Detected Data		5
285					Number of Distinct Detected Data	5				Number of Non-Detect Data		10
286										Percent Non-Detects		66.67%
287												
288				**Raw Statistics**						**Log-transformed Statistics**		
289					Minimum Detected	1.8				Minimum Detected		0.588
290					Maximum Detected	7.7				Maximum Detected		2.041
291					Mean of Detected	3.46				Mean of Detected		1.09
292					SD of Detected	2.424				SD of Detected		0.574
293					Minimum Non-Detect	9.2				Minimum Non-Detect		2.219
294					Maximum Non-Detect	19				Maximum Non-Detect		2.944
295												
296	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
297	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
298	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
299												
300					**Warning: There are only 5 Detected Values in this data**							
301					**Note: It should be noted that even though bootstrap may be performed on this data set**							
302					**the resulting calculations may not be reliable enough tp draw conclusions**							
303												
304					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
305												
306												
307					**UCL Statistics**							
308				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
309					Shapiro Wilk Test Statistic	0.737				Shapiro Wilk Test Statistic		0.858
310					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
311				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
312												
313				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
314					DL/2 Substitution Method					DL/2 Substitution Method		
315					Mean	5.19				Mean		1.551
316					SD	2.121				SD		0.484
317					95% DL/2 (t) UCL	6.155				95% H-Stat (DL/2) UCL		9.583
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
320				**MLE method failed to converge properly**							Mean in Log Scale	1.09
321											SD in Log Scale	0.374
322											Mean in Original Scale	3.2
323											SD in Original Scale	1.468
324											95% Percentile Bootstrap UCL	3.849
325											95% BCA Bootstrap UCL	4.091
326												
327				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
328					k star (bias corrected)	1.519				**Data appear Gamma Distributed at 5% Significance Level**		
329					Theta Star	2.277						
330					nu star	15.19						
331												
332					A-D Test Statistic	0.56				**Nonparametric Statistics**		
333					5% A-D Critical Value	0.682					Kaplan-Meier (KM) Method	
334					K-S Test Statistic	0.682					Mean	3.46
335					5% K-S Critical Value	0.359					SD	2.169
336				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	1.084
337											95% KM (t) UCL	5.37
338				**Assuming Gamma Distribution**							95% KM (z) UCL	5.243
339					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.523
340					Minimum	1.619					95% KM (bootstrap t) UCL	9.987
341					Maximum	7.7					95% KM (BCA) UCL	5.42
342					Mean	3.516					95% KM (Percentile Bootstrap) UCL	5.35
343					Median	3.581					95% KM (Chebyshev) UCL	8.186
344					SD	1.54					97.5% KM (Chebyshev) UCL	10.23
345					k star	5.116					99% KM (Chebyshev) UCL	14.25
346					Theta star	0.687						
347					Nu star	153.5				**Potential UCLs to Use**		
348					AppChi2	125.8					95% KM (t) UCL	5.37
349					95% Gamma Approximate UCL	4.289						
350					95% Adjusted Gamma UCL	4.396						
351	**Note: DL/2 is not a recommended method.**											
352												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	8			Number of Distinct Observations	8	
13												
14						Raw Statistics				Log-transformed Statistics		
15						Minimum	0.48			Minimum of Log Data	-0.734	
16						Maximum	1.2			Maximum of Log Data	0.182	
17						Mean	0.87			Mean of log Data	-0.171	
18						Median	0.845			SD of log Data	0.277	
19						SD	0.219					
20						Coefficient of Variation	0.252					
21						Skewness	-0.234					
22												
23												
24						Warning: There are only 8 Values in this data						
25						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
26						the resulting calculations may not be reliable enough to draw conclusions						
27												
28						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
29												
30						Relevant UCL Statistics						
31						Normal Distribution Test				Lognormal Distribution Test		
32						Shapiro Wilk Test Statistic	0.96			Shapiro Wilk Test Statistic	0.915	
33						Shapiro Wilk Critical Value	0.818			Shapiro Wilk Critical Value	0.818	
34						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
35												
36						Assuming Normal Distribution				Assuming Lognormal Distribution		
37						95% Student's-t UCL	1.017			95% H-UCL	1.084	
38						95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	1.246	
39						95% Adjusted-CLT UCL	0.991			97.5% Chebyshev (MVUE) UCL	1.408	
40						95% Modified-t UCL	1.016			99% Chebyshev (MVUE) UCL	1.725	
41												
42						Gamma Distribution Test				Data Distribution		
43						k star (bias corrected)	10.17			Data appear Normal at 5% Significance Level		
44						Theta Star	0.0855					
45						nu star	162.7					
46						Approximate Chi Square Value (.05)	134.3			Nonparametric Statistics		
47						Adjusted Level of Significance	0.0195			95% CLT UCL	0.998	
48						Adjusted Chi Square Value	127.7			95% Jackknife UCL	1.017	
49										95% Standard Bootstrap UCL	0.988	
50						Anderson-Darling Test Statistic	0.321			95% Bootstrap-t UCL	1.019	
51						Anderson-Darling 5% Critical Value	0.716			95% Hall's Bootstrap UCL	1.038	
52						Kolmogorov-Smirnov Test Statistic	0.184			95% Percentile Bootstrap UCL	0.984	
53						Kolmogorov-Smirnov 5% Critical Value	0.294			95% BCA Bootstrap UCL	0.984	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL		1.208
55										97.5% Chebyshev(Mean, Sd) UCL		1.355
56	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL		1.642
57					95% Approximate Gamma UCL	1.055						
58					95% Adjusted Gamma UCL	1.109						
59												
60	Potential UCL to Use									Use 95% Student's-t UCL		1.017
61												
62												
63	Carbazole											
64												
65					General Statistics							
66					Number of Valid Observations	8				Number of Distinct Observations		7
67												
68				Raw Statistics						Log-transformed Statistics		
69					Minimum	0.11				Minimum of Log Data		-2.207
70					Maximum	0.33				Maximum of Log Data		-1.109
71					Mean	0.225				Mean of log Data		-1.547
72					Median	0.235				SD of log Data		0.37
73					SD	0.0743						
74					Coefficient of Variation	0.33						
75					Skewness	-0.246						
76												
77												
78					Warning: There are only 8 Values in this data							
79					Note: It should be noted that even though bootstrap methods may be performed on this data set,							
80					the resulting calculations may not be reliable enough to draw conclusions							
81												
82					The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.							
83												
84					Relevant UCL Statistics							
85				Normal Distribution Test						Lognormal Distribution Test		
86					Shapiro Wilk Test Statistic	0.969				Shapiro Wilk Test Statistic		0.937
87					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
88				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
89												
90				Assuming Normal Distribution						Assuming Lognormal Distribution		
91					95% Student's-t UCL	0.275				95% H-UCL		0.308
92				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL		0.355
93					95% Adjusted-CLT UCL	0.266				97.5% Chebyshev (MVUE) UCL		0.411
94					95% Modified-t UCL	0.274				99% Chebyshev (MVUE) UCL		0.521
95												
96				Gamma Distribution Test						Data Distribution		
97					k star (bias corrected)	5.855				Data appear Normal at 5% Significance Level		
98					Theta Star	0.0384						
99					nu star	93.68						
100					Approximate Chi Square Value (.05)	72.36				Nonparametric Statistics		
101					Adjusted Level of Significance	0.0195				95% CLT UCL		0.268
102					Adjusted Chi Square Value	67.63				95% Jackknife UCL		0.275
103										95% Standard Bootstrap UCL		0.265
104					Anderson-Darling Test Statistic	0.265				95% Bootstrap-t UCL		0.27
105					Anderson-Darling 5% Critical Value	0.716				95% Hall's Bootstrap UCL		0.264
106					Kolmogorov-Smirnov Test Statistic	0.168				95% Percentile Bootstrap UCL		0.264

	A	B	C	D	E	F	G	H	I	J	K	L
107					Kolmogorov-Smirnov 5% Critical Value	0.294					95% BCA Bootstrap UCL	0.263
108					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.339
109											97.5% Chebyshev(Mean, Sd) UCL	0.389
110					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.486
111					95% Approximate Gamma UCL	0.291						
112					95% Adjusted Gamma UCL	0.312						
113												
114					**Potential UCL to Use**						Use 95% Student's-t UCL	0.275
115												
116												
117	**Dibenzofuran**											
118												
119					**General Statistics**							
120					Number of Valid Observations	8					Number of Distinct Observations	7
121												
122					**Raw Statistics**						**Log-transformed Statistics**	
123					Minimum	0.069					Minimum of Log Data	-2.674
124					Maximum	0.095					Maximum of Log Data	-2.354
125					Mean	0.0828					Mean of log Data	-2.496
126					Median	0.082					SD of log Data	0.102
127					SD	0.00835						
128					Coefficient of Variation	0.101						
129					Skewness	0.0347						
130												
131												
132					**Warning: There are only 8 Values in this data**							
133					**Note: It should be noted that even though bootstrap methods may be performed on this data set,**							
134					**the resulting calculations may not be reliable enough to draw conclusions**							
135												
136					**The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.**							
137												
138					**Relevant UCL Statistics**							
139					**Normal Distribution Test**						**Lognormal Distribution Test**	
140					Shapiro Wilk Test Statistic	0.948					Shapiro Wilk Test Statistic	0.948
141					Shapiro Wilk Critical Value	0.818					Shapiro Wilk Critical Value	0.818
142					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
143												
144					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
145					95% Student's-t UCL	0.0883					95% H-UCL	0.0889
146					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.0957
147					95% Adjusted-CLT UCL	0.0876					97.5% Chebyshev (MVUE) UCL	0.101
148					95% Modified-t UCL	0.0883					99% Chebyshev (MVUE) UCL	0.112
149												
150					**Gamma Distribution Test**						**Data Distribution**	
151					k star (bias corrected)	69.78					**Data appear Normal at 5% Significance Level**	
152					Theta Star	0.00119						
153					nu star	1117						
154					Approximate Chi Square Value (.05)	1040					**Nonparametric Statistics**	
155					Adjusted Level of Significance	0.0195					95% CLT UCL	0.0876
156					Adjusted Chi Square Value	1021					95% Jackknife UCL	0.0883
157											95% Standard Bootstrap UCL	0.0873
158					Anderson-Darling Test Statistic	0.303					95% Bootstrap-t UCL	0.0892
159					Anderson-Darling 5% Critical Value	0.715					95% Hall's Bootstrap UCL	0.0913

	A	B	C	D	E	F	G	H	I	J	K	L
160					Kolmogorov-Smirnov Test Statistic	0.175				95% Percentile Bootstrap UCL		0.0871
161					Kolmogorov-Smirnov 5% Critical Value	0.294				95% BCA Bootstrap UCL		0.0874
162					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		0.0956
163										97.5% Chebyshev(Mean, Sd) UCL		0.101
164					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		0.112
165					95% Approximate Gamma UCL	0.0888						
166					95% Adjusted Gamma UCL	0.0905						
167												
168					**Potential UCL to Use**					Use 95% Student's-t UCL		0.0883
169												
170												
171	**Cobalt**											
172												
173					**General Statistics**							
174					Number of Valid Data	8				Number of Detected Data		0
175					Number of Distinct Detected Data	0				Number of Non-Detect Data		8
176										Percent Non-Detects		100.00%
177												
178					**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**							
179					**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**							
180					**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**							
181												
182					**The data set for variable Cobalt was not processed!**							
183												
184												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11					General Statistics							
12					Number of Valid Data	14			Number of Detected Data			0
13					Number of Distinct Detected Data	0			Number of Non-Detect Data			14
14									Percent Non-Detects			100.00%
15												
16					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
17					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
18					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
19												
20					The data set for variable 1,4-Dichlorobenzene was not processed!							
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26					General Statistics							
27					Number of Valid Data	14			Number of Detected Data			0
28					Number of Distinct Detected Data	0			Number of Non-Detect Data			14
29									Percent Non-Detects			100.00%
30												
31					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
32					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
33					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
34												
35					The data set for variable Benzo(g,h,i)perylene was not processed!							
36												
37												
38												
39	Cobalt											
40												
41					General Statistics							
42					Number of Valid Data	14			Number of Detected Data			3
43					Number of Distinct Detected Data	3			Number of Non-Detect Data			11
44									Percent Non-Detects			78.57%
45												
46					Raw Statistics				Log-transformed Statistics			
47					Minimum Detected	0.56			Minimum Detected			-0.58
48					Maximum Detected	1.5			Maximum Detected			0.405
49					Mean of Detected	1.013			Mean of Detected			-0.0649
50					SD of Detected	0.471			SD of Detected			0.494
51					Minimum Non-Detect	0.37			Minimum Non-Detect			-0.994
52					Maximum Non-Detect	2.3			Maximum Non-Detect			0.833
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
55	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
56	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
57												
58	**Warning: There are only 3 Distinct Detected Values in this data set**											
59	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
60	**Those methods will return a 'N/A' value on your output display!**											
61												
62	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
63	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
64												
65												
66	**UCL Statistics**											
67	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
68					Shapiro Wilk Test Statistic	0.996					Shapiro Wilk Test Statistic	0.994
69					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
70	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
71												
72	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
73					DL/2 Substitution Method						DL/2 Substitution Method	
74					Mean	0.531					Mean	-0.837
75					SD	0.396					SD	0.629
76					95% DL/2 (t) UCL	0.719					95% H-Stat (DL/2) UCL	0.612
77												
78					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
79	**MLE method failed to converge properly**										Mean in Log Scale	-1.04
80											SD in Log Scale	0.576
81											Mean in Original Scale	0.432
82											SD in Original Scale	0.367
83											95% Percentile Bootstrap UCL	0.61
84											95% BCA Bootstrap UCL	0.663
85												
86	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
87					k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**					
88					Theta Star	N/A						
89					nu star	N/A						
90												
91					A-D Test Statistic	0.247	**Nonparametric Statistics**					
92					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
93					K-S Test Statistic	N/A					Mean	0.668
94					5% K-S Critical Value	N/A					SD	0.267
95	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0914
96											95% KM (t) UCL	0.829
97	**Assuming Gamma Distribution**										95% KM (z) UCL	0.818
98					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.948
99					Minimum	N/A					95% KM (bootstrap t) UCL	0.756
100					Maximum	N/A					95% KM (BCA) UCL	1.5
101					Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A
102					Median	N/A					95% KM (Chebyshev) UCL	1.066
103					SD	N/A					97.5% KM (Chebyshev) UCL	1.238
104					k star	N/A					99% KM (Chebyshev) UCL	1.577
105					Theta star	N/A						
106					Nu star	N/A	**Potential UCLs to Use**					

	A	B	C	D	E	F	G	H	I	J	K	L
107					AppChi2	N/A					95% KM (t) UCL	0.829
108					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	N/A
109					95% Adjusted Gamma UCL	N/A						
110	Note: DL/2 is not a recommended method.											
111												
112												
113	Naphthalene											
114												
115					General Statistics							
116					Number of Valid Data	14					Number of Detected Data	0
117					Number of Distinct Detected Data	0					Number of Non-Detect Data	14
118											Percent Non-Detects	100.00%
119												
120					Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!							
121					Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!							
122					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).							
123												
124					The data set for variable Naphthalene was not processed!							
125												
126												
127												
128	Phenanthrene											
129												
130					General Statistics							
131					Number of Valid Data	14					Number of Detected Data	3
132					Number of Distinct Detected Data	3					Number of Non-Detect Data	11
133											Percent Non-Detects	78.57%
134												
135					Raw Statistics						Log-transformed Statistics	
136					Minimum Detected	0.1					Minimum Detected	-2.303
137					Maximum Detected	0.17					Maximum Detected	-1.772
138					Mean of Detected	0.127					Mean of Detected	-2.094
139					SD of Detected	0.0379					SD of Detected	0.283
140					Minimum Non-Detect	0.1					Minimum Non-Detect	-2.303
141					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
142												
143												
144					Warning: There are only 3 Distinct Detected Values in this data set							
145					The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.							
146					Those methods will return a 'N/A' value on your output display!							
147												
148					It is necessary to have 4 or more Distinct Values for bootstrap methods.							
149					It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.							
150												
151												
152					UCL Statistics							
153					Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only	
154					Shapiro Wilk Test Statistic	0.855					Shapiro Wilk Test Statistic	0.88
155					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
156					Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
157												
158					Assuming Normal Distribution						Assuming Lognormal Distribution	
159					DL/2 Substitution Method						DL/2 Substitution Method	

	A	B	C	D	E	F	G	H	I	J	K	L
160					Mean	0.0664					Mean	-2.802
161					SD	0.0359					SD	0.4
162					95% DL/2 (t) UCL	0.0834					95% H-Stat (DL/2) UCL	0.0819
163												
164					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
165					Mean	0.0565					Mean in Log Scale	-3.212
166					SD	0.0532					SD in Log Scale	0.797
167					95% MLE (t) UCL	0.0817					Mean in Original Scale	0.054
168					95% MLE (Tiku) UCL	0.114					SD in Original Scale	0.0449
169											95% Percentile Bootstrap UCL	0.0742
170											95% BCA Bootstrap UCL	0.078
171												
172					**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**	
173					k star (bias corrected)	N/A					**Data appear Normal at 5% Significance Level**	
174					Theta Star	N/A						
175					nu star	N/A						
176												
177					A-D Test Statistic	0.432					**Nonparametric Statistics**	
178					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
179					K-S Test Statistic	N/A					Mean	0.106
180					5% K-S Critical Value	N/A					SD	0.018
181					**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.0059
182											95% KM (t) UCL	0.116
183					**Assuming Gamma Distribution**						95% KM (z) UCL	0.115
184					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	N/A
185					Minimum	N/A					95% KM (bootstrap t) UCL	N/A
186					Maximum	N/A					95% KM (BCA) UCL	N/A
187					Mean	N/A					95% KM (Percentile Bootstrap) UCL	N/A
188					Median	N/A					95% KM (Chebyshev) UCL	0.131
189					SD	N/A					97.5% KM (Chebyshev) UCL	0.143
190					k star	N/A					99% KM (Chebyshev) UCL	0.164
191					Theta star	N/A						
192					Nu star	N/A					**Potential UCLs to Use**	
193					AppChi2	N/A					95% KM (t) UCL	0.116
194					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	N/A
195					95% Adjusted Gamma UCL	N/A						
196	**Note: DL/2 is not a recommended method.**											
197												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island Ponds SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Data	17			Number of Detected Data		16
13						Number of Distinct Detected Data	15			Number of Non-Detect Data		1
14										Percent Non-Detects		5.88%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.147			Minimum Detected		-1.917
18						Maximum Detected	2.245			Maximum Detected		0.809
19						Mean of Detected	0.78			Mean of Detected		-0.604
20						SD of Detected	0.65			SD of Detected		0.902
21						Minimum Non-Detect	0.0037			Minimum Non-Detect		-5.599
22						Maximum Non-Detect	0.0037			Maximum Non-Detect		-5.599
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.865			Shapiro Wilk Test Statistic		0.926
28						5% Shapiro Wilk Critical Value	0.887			5% Shapiro Wilk Critical Value		0.887
29				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	0.734			Mean		-0.939
34						SD	0.657			SD		1.633
35						95% DL/2 (t) UCL	1.013			95% H-Stat (DL/2) UCL		4.167
36												
37						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
38						Mean	0.714			Mean in Log Scale		-0.734
39						SD	0.669			SD in Log Scale		1.024
40						95% MLE (t) UCL	0.998			Mean in Original Scale		0.738
41						95% MLE (Tiku) UCL	0.989			SD in Original Scale		0.653
42										95% Percentile Bootstrap UCL		0.999
43										95% BCA Bootstrap UCL		1.024
44												
45				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		
46						k star (bias corrected)	1.301			Data appear Gamma Distributed at 5% Significance Level		
47						Theta Star	0.6					
48						nu star	41.62					
49												
50						A-D Test Statistic	0.512			Nonparametric Statistics		
51						5% A-D Critical Value	0.754			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	0.754			Mean		0.743
53						5% K-S Critical Value	0.219			SD		0.629

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.157
55											95% KM (t) UCL	1.018
56	Assuming Gamma Distribution										95% KM (z) UCL	1.002
57				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.016
58					Minimum	1E-09					95% KM (bootstrap t) UCL	1.079
59					Maximum	2.245					95% KM (BCA) UCL	0.974
60					Mean	0.734					95% KM (Percentile Bootstrap) UCL	1.011
61					Median	0.48					95% KM (Chebyshev) UCL	1.429
62					SD	0.657					97.5% KM (Chebyshev) UCL	1.726
63					k star	0.4					99% KM (Chebyshev) UCL	2.31
64					Theta star	1.834						
65					Nu star	13.61	Potential UCLs to Use					
66					AppChi2	6.305					95% KM (Chebyshev) UCL	1.429
67					95% Gamma Approximate UCL	1.585						
68					95% Adjusted Gamma UCL	1.726						
69	Note: DL/2 is not a recommended method.											
70												
71												
72	Carbazole											
73												
74					General Statistics							
75					Number of Valid Data	17					Number of Detected Data	11
76					Number of Distinct Detected Data	11					Number of Non-Detect Data	6
77											Percent Non-Detects	35.29%
78												
79				Raw Statistics						Log-transformed Statistics		
80					Minimum Detected	0.045					Minimum Detected	-3.101
81					Maximum Detected	0.2					Maximum Detected	-1.609
82					Mean of Detected	0.117					Mean of Detected	-2.229
83					SD of Detected	0.0487					SD of Detected	0.446
84					Minimum Non-Detect	0.15					Minimum Non-Detect	-1.897
85					Maximum Non-Detect	0.49					Maximum Non-Detect	-0.713
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
88	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
89	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
90												
91					UCL Statistics							
92				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
93					Shapiro Wilk Test Statistic	0.942					Shapiro Wilk Test Statistic	0.95
94					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
95				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
96												
97				Assuming Normal Distribution						Assuming Lognormal Distribution		
98					DL/2 Substitution Method						DL/2 Substitution Method	
99					Mean	0.141					Mean	-2.059
100					SD	0.0603					SD	0.486
101					95% DL/2 (t) UCL	0.167					95% H-Stat (DL/2) UCL	0.27
102												
103					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
104				MLE method failed to converge properly							Mean in Log Scale	-2.251
105											SD in Log Scale	0.357
106											Mean in Original Scale	0.112

	A–E	F	G–K	L
107			SD in Original Scale	0.0395
108			95% Percentile Bootstrap UCL	0.128
109			95% BCA Bootstrap UCL	0.128
110				
111	**Gamma Distribution Test with Detected Values Only**		**Data Distribution Test with Detected Values Only**	
112	k star (bias corrected)	4.458	**Data appear Normal at 5% Significance Level**	
113	Theta Star	0.0263		
114	nu star	98.07		
115				
116	A-D Test Statistic	0.303	**Nonparametric Statistics**	
117	5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
118	K-S Test Statistic	0.731	Mean	0.115
119	5% K-S Critical Value	0.256	SD	0.0457
120	**Data appear Gamma Distributed at 5% Significance Level**		SE of Mean	0.014
121			95% KM (t) UCL	0.139
122	**Assuming Gamma Distribution**		95% KM (z) UCL	0.138
123	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.139
124	Minimum	0.045	95% KM (bootstrap t) UCL	0.14
125	Maximum	0.2	95% KM (BCA) UCL	0.135
126	Mean	0.12	95% KM (Percentile Bootstrap) UCL	0.138
127	Median	0.13	95% KM (Chebyshev) UCL	0.175
128	SD	0.0392	97.5% KM (Chebyshev) UCL	0.202
129	k star	7.431	99% KM (Chebyshev) UCL	0.253
130	Theta star	0.0162		
131	Nu star	252.6	**Potential UCLs to Use**	
132	AppChi2	216.8	95% KM (t) UCL	0.139
133	95% Gamma Approximate UCL	0.14	95% KM (Percentile Bootstrap) UCL	0.138
134	95% Adjusted Gamma UCL	0.142		
135	**Note: DL/2 is not a recommended method.**			
136				
137				
138	**Dibenzofuran**			
139				
140	**General Statistics**			
141	Number of Valid Data	17	Number of Detected Data	6
142	Number of Distinct Detected Data	6	Number of Non-Detect Data	11
143			Percent Non-Detects	64.71%
144				
145	**Raw Statistics**		**Log-transformed Statistics**	
146	Minimum Detected	0.045	Minimum Detected	-3.101
147	Maximum Detected	0.1	Maximum Detected	-2.303
148	Mean of Detected	0.0755	Mean of Detected	-2.619
149	SD of Detected	0.0207	SD of Detected	0.299
150	Minimum Non-Detect	0.15	Minimum Non-Detect	-1.897
151	Maximum Non-Detect	0.53	Maximum Non-Detect	-0.635
152				
153	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	17
154	For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
155	Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
156				
157	**Warning: There are only 6 Detected Values in this data**			
158	**Note: It should be noted that even though bootstrap may be performed on this data set**			
159	**the resulting calculations may not be reliable enough tp draw conclusions**			

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
162												
163												
164	UCL Statistics											
165	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
166					Shapiro Wilk Test Statistic	0.949				Shapiro Wilk Test Statistic		0.927
167					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
168	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
169												
170	Assuming Normal Distribution						Assuming Lognormal Distribution					
171					DL/2 Substitution Method					DL/2 Substitution Method		
172					Mean	0.15				Mean		-2.037
173					SD	0.0756				SD		0.577
174					95% DL/2 (t) UCL	0.182				95% H-Stat (DL/2) UCL		0.442
175												
176					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
177	MLE method failed to converge properly									Mean in Log Scale		-2.619
178										SD in Log Scale		0.167
179										Mean in Original Scale		0.0738
180										SD in Original Scale		0.0117
181										95% Percentile Bootstrap UCL		0.0783
182										95% BCA Bootstrap UCL		0.0782
183												
184	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
185					k star (bias corrected)	7.308	Data appear Normal at 5% Significance Level					
186					Theta Star	0.0103						
187					nu star	87.7						
188												
189					A-D Test Statistic	0.299	Nonparametric Statistics					
190					5% A-D Critical Value	0.698				Kaplan-Meier (KM) Method		
191					K-S Test Statistic	0.698				Mean		0.0755
192					5% K-S Critical Value	0.332				SD		0.0189
193	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		0.00846
194										95% KM (t) UCL		0.0903
195	Assuming Gamma Distribution									95% KM (z) UCL		0.0894
196					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0912
197					Minimum	0.045				95% KM (bootstrap t) UCL		0.0911
198					Maximum	0.1				95% KM (BCA) UCL		0.0879
199					Mean	0.0777				95% KM (Percentile Bootstrap) UCL		0.0895
200					Median	0.0789				95% KM (Chebyshev) UCL		0.112
201					SD	0.0117				97.5% KM (Chebyshev) UCL		0.128
202					k star	32.79				99% KM (Chebyshev) UCL		0.16
203					Theta star	0.00237						
204					Nu star	1115	Potential UCLs to Use					
205					AppChi2	1038				95% KM (t) UCL		0.0903
206					95% Gamma Approximate UCL	0.0834				95% KM (Percentile Bootstrap) UCL		0.0895
207					95% Adjusted Gamma UCL	0.0841						
208	Note: DL/2 is not a recommended method.											
209												
210												
211	Phenanthrene											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	General Statistics											
214	Number of Valid Data					17	Number of Detected Data					16
215	Number of Distinct Detected Data					15	Number of Non-Detect Data					1
216							Percent Non-Detects					5.88%
217												
218	Raw Statistics						Log-transformed Statistics					
219	Minimum Detected					0.093	Minimum Detected					-2.375
220	Maximum Detected					2.775	Maximum Detected					1.021
221	Mean of Detected					1.098	Mean of Detected					-0.209
222	SD of Detected					0.789	SD of Detected					0.895
223	Minimum Non-Detect					0.0037	Minimum Non-Detect					-5.599
224	Maximum Non-Detect					0.0037	Maximum Non-Detect					-5.599
225												
226												
227	UCL Statistics											
228	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
229	Shapiro Wilk Test Statistic					0.921	Shapiro Wilk Test Statistic					0.949
230	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
231	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
232												
233	Assuming Normal Distribution						Assuming Lognormal Distribution					
234	DL/2 Substitution Method						DL/2 Substitution Method					
235	Mean					1.034	Mean					-0.567
236	SD					0.809	SD					1.711
237	95% DL/2 (t) UCL					1.376	95% H-Stat (DL/2) UCL					7.571
238												
239	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
240	Mean					1.01	Mean in Log Scale					-0.335
241	SD					0.824	SD in Log Scale					1.01
242	95% MLE (t) UCL					1.359	Mean in Original Scale					1.039
243	95% MLE (Tiku) UCL					1.353	SD in Original Scale					0.802
244							95% Percentile Bootstrap UCL					1.377
245							95% BCA Bootstrap UCL					1.402
246												
247	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
248	k star (bias corrected)					1.506	Data appear Normal at 5% Significance Level					
249	Theta Star					0.729						
250	nu star					48.2						
251												
252	A-D Test Statistic					0.143	Nonparametric Statistics					
253	5% A-D Critical Value					0.752	Kaplan-Meier (KM) Method					
254	K-S Test Statistic					0.752	Mean					1.039
255	5% K-S Critical Value					0.218	SD					0.778
256	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.195
257							95% KM (t) UCL					1.379
258	Assuming Gamma Distribution						95% KM (z) UCL					1.359
259	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.374
260	Minimum					1E-09	95% KM (bootstrap t) UCL					1.451
261	Maximum					2.775	95% KM (BCA) UCL					1.378
262	Mean					1.033	95% KM (Percentile Bootstrap) UCL					1.361
263	Median					0.92	95% KM (Chebyshev) UCL					1.888
264	SD					0.809	97.5% KM (Chebyshev) UCL					2.256
265	k star					0.407	99% KM (Chebyshev) UCL					2.978

	A	B	C	D	E	F	G	H	I	J	K	L
266					Theta star	2.54						
267					Nu star	13.83	**Potential UCLs to Use**					
268					AppChi2	6.457					95% KM (t) UCL	1.379
269				95% Gamma Approximate UCL		2.214					95% KM (Percentile Bootstrap) UCL	1.361
270				95% Adjusted Gamma UCL		2.409						
271	**Note: DL/2 is not a recommended method.**											
272												
273												
274	**Cobalt**											
275												
276					**General Statistics**							
277					Number of Valid Data	17					Number of Detected Data	3
278					Number of Distinct Detected Data	3					Number of Non-Detect Data	14
279											Percent Non-Detects	82.35%
280												
281					**Raw Statistics**						**Log-transformed Statistics**	
282					Minimum Detected	4.6					Minimum Detected	1.526
283					Maximum Detected	14					Maximum Detected	2.639
284					Mean of Detected	9.233					Mean of Detected	2.124
285					SD of Detected	4.701					SD of Detected	0.561
286					Minimum Non-Detect	8.9					Minimum Non-Detect	2.186
287					Maximum Non-Detect	14					Maximum Non-Detect	2.639
288												
289	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
290	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
291	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.12%
292												
293	**Warning: There are only 3 Distinct Detected Values in this data set**											
294	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
295	**Those methods will return a 'N/A' value on your output display!**											
296												
297	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
298	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
299												
300												
301					**UCL Statistics**							
302					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
303					Shapiro Wilk Test Statistic	0.999					Shapiro Wilk Test Statistic	0.983
304					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
305					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
306												
307					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
308					DL/2 Substitution Method						DL/2 Substitution Method	
309					Mean	6.453					Mean	1.822
310					SD	2.264					SD	0.28
311					95% DL/2 (t) UCL	7.411					95% H-Stat (DL/2) UCL	8.656
312												
313					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
314					**MLE method failed to converge properly**						Mean in Log Scale	1.798
315											SD in Log Scale	0.323
316											Mean in Original Scale	6.377
317											SD in Original Scale	2.448
318											95% Percentile Bootstrap UCL	7.357

	A	B	C	D	E	F	G	H	I	J	K	L
319											95% BCA Bootstrap UCL	7.586
320												
321	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
322					k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**					
323					Theta Star	N/A						
324					nu star	N/A						
325												
326					A-D Test Statistic	0.254	**Nonparametric Statistics**					
327					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
328					K-S Test Statistic	N/A				Mean		6.565
329					5% K-S Critical Value	N/A				SD		2.773
330	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		1.516
331										95% KM (t) UCL		9.211
332	**Assuming Gamma Distribution**									95% KM (z) UCL		9.058
333				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		10.06
334					Minimum	N/A				95% KM (bootstrap t) UCL		8.97
335					Maximum	N/A				95% KM (BCA) UCL		N/A
336					Mean	N/A				95% KM (Percentile Bootstrap) UCL		14
337					Median	N/A				95% KM (Chebyshev) UCL		13.17
338					SD	N/A				97.5% KM (Chebyshev) UCL		16.03
339					k star	N/A				99% KM (Chebyshev) UCL		21.65
340					Theta star	N/A						
341					Nu star	N/A	**Potential UCLs to Use**					
342					AppChi2	N/A				95% KM (t) UCL		9.211
343					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		14
344					95% Adjusted Gamma UCL	N/A						
345	**Note: DL/2 is not a recommended method.**											
346												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island Ponds SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11						General Statistics						
12						Number of Valid Data	15		Number of Detected Data		0	
13						Number of Distinct Detected Data	0		Number of Non-Detect Data		15	
14									Percent Non-Detects		100.00%	
15												
16						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
17						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
18						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
19												
20						The data set for variable 1,4-Dichlorobenzene was not processed!						
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26						General Statistics						
27						Number of Valid Data	15		Number of Detected Data		1	
28						Number of Distinct Detected Data	1		Number of Non-Detect Data		14	
29									Percent Non-Detects		93.33%	
30												
31						Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!						
32						It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).						
33												
34						The data set for variable Benzo(g,h,i)perylene was not processed!						
35												
36												
37												
38	Cobalt											
39												
40						General Statistics						
41						Number of Valid Data	15		Number of Detected Data		0	
42						Number of Distinct Detected Data	0		Number of Non-Detect Data		15	
43									Percent Non-Detects		100.00%	
44												
45						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
46						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
47						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
48												
49						The data set for variable Cobalt was not processed!						
50												
51												
52												
53	Naphthalene											

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55						General Statistics						
56					Number of Valid Data	15				Number of Detected Data		1
57					Number of Distinct Detected Data	1				Number of Non-Detect Data		14
58										Percent Non-Detects		93.33%
59												
60					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
61	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
62												
63					The data set for variable Naphthalene was not processed!							
64												
65												
66												
67	Phenanthrene											
68												
69						General Statistics						
70					Number of Valid Data	15				Number of Detected Data		5
71					Number of Distinct Detected Data	4				Number of Non-Detect Data		10
72										Percent Non-Detects		66.67%
73												
74					Raw Statistics					Log-transformed Statistics		
75					Minimum Detected	0.11				Minimum Detected		-2.207
76					Maximum Detected	0.21				Maximum Detected		-1.561
77					Mean of Detected	0.16				Mean of Detected		-1.862
78					SD of Detected	0.043				SD of Detected		0.272
79					Minimum Non-Detect	0.1				Minimum Non-Detect		-2.303
80					Maximum Non-Detect	0.1				Maximum Non-Detect		-2.303
81												
82												
83					Warning: There are only 4 Distinct Detected Values in this data							
84					Note: It should be noted that even though bootstrap may be performed on this data set							
85					the resulting calculations may not be reliable enough tp draw conclusions							
86												
87					It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.							
88												
89												
90						UCL Statistics						
91					Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only		
92					Shapiro Wilk Test Statistic	0.885				Shapiro Wilk Test Statistic		0.9
93					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
94					Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
95												
96					Assuming Normal Distribution					Assuming Lognormal Distribution		
97					DL/2 Substitution Method					DL/2 Substitution Method		
98					Mean	0.0867				Mean		-2.618
99					SD	0.0584				SD		0.572
100					95% DL/2 (t) UCL	0.113				95% H-Stat (DL/2) UCL		0.0998
101												
102					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
103					Mean	0.0656				Mean in Log Scale		-2.525
104					SD	0.0845				SD in Log Scale		0.591
105					95% MLE (t) UCL	0.104				Mean in Original Scale		0.094
106					95% MLE (Tiku) UCL	0.127				SD in Original Scale		0.0562

	A	B	C	D	E	F	G	H	I	J	K	L
107											95% Percentile Bootstrap UCL	0.119
108											95% BCA Bootstrap UCL	0.121
109												
110				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
111					k star (bias corrected)	7.017			**Data appear Normal at 5% Significance Level**			
112					Theta Star	0.0228						
113					nu star	70.17						
114												
115					A-D Test Statistic	0.417			**Nonparametric Statistics**			
116					5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method	
117					K-S Test Statistic	0.679					Mean	0.127
118					5% K-S Critical Value	0.357					SD	0.0324
119				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.00935
120											95% KM (t) UCL	0.143
121				**Assuming Gamma Distribution**							95% KM (z) UCL	0.142
122					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.147
123					Minimum	0.102					95% KM (bootstrap t) UCL	0.148
124					Maximum	0.265					95% KM (BCA) UCL	0.2
125					Mean	0.188					95% KM (Percentile Bootstrap) UCL	0.159
126					Median	0.2					95% KM (Chebyshev) UCL	0.167
127					SD	0.052					97.5% KM (Chebyshev) UCL	0.185
128					k star	10.18					99% KM (Chebyshev) UCL	0.22
129					Theta star	0.0184						
130					Nu star	305.4			**Potential UCLs to Use**			
131					AppChi2	265.9					95% KM (t) UCL	0.143
132					95% Gamma Approximate UCL	0.215					95% KM (Percentile Bootstrap) UCL	0.159
133					95% Adjusted Gamma UCL	0.219						
134	**Note: DL/2 is not a recommended method.**											
135												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	25			Number of Distinct Observations	21	
13												
14				Raw Statistics						Log-transformed Statistics		
15						Minimum	0.036			Minimum of Log Data	-3.324	
16						Maximum	2.3			Maximum of Log Data	0.833	
17						Mean	0.488			Mean of log Data	-1.22	
18						Median	0.26			SD of log Data	1.037	
19						SD	0.536					
20						Coefficient of Variation	1.1					
21						Skewness	2.003					
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test						Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.754			Shapiro Wilk Test Statistic	0.981	
26						Shapiro Wilk Critical Value	0.918			Shapiro Wilk Critical Value	0.918	
27				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
28												
29				Assuming Normal Distribution						Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.671			95% H-UCL	0.866	
31				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	0.997	
32						95% Adjusted-CLT UCL	0.71			97.5% Chebyshev (MVUE) UCL	1.217	
33						95% Modified-t UCL	0.678			99% Chebyshev (MVUE) UCL	1.648	
34												
35				Gamma Distribution Test						Data Distribution		
36						k star (bias corrected)	1.025			Data appear Gamma Distributed at 5% Significance Level		
37						Theta Star	0.476					
38						nu star	51.25					
39						Approximate Chi Square Value (.05)	35.81			Nonparametric Statistics		
40						Adjusted Level of Significance	0.0395			95% CLT UCL	0.664	
41						Adjusted Chi Square Value	34.93			95% Jackknife UCL	0.671	
42										95% Standard Bootstrap UCL	0.663	
43						Anderson-Darling Test Statistic	0.595			95% Bootstrap-t UCL	0.762	
44						Anderson-Darling 5% Critical Value	0.77			95% Hall's Bootstrap UCL	0.759	
45						Kolmogorov-Smirnov Test Statistic	0.169			95% Percentile Bootstrap UCL	0.673	
46						Kolmogorov-Smirnov 5% Critical Value	0.179			95% BCA Bootstrap UCL	0.704	
47				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	0.955	
48										97.5% Chebyshev(Mean, Sd) UCL	1.158	
49				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	1.555	
50						95% Approximate Gamma UCL	0.698					
51						95% Adjusted Gamma UCL	0.716					
52												
53				Potential UCL to Use						Use 95% Approximate Gamma UCL	0.698	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Carbazole**											
57												
58						**General Statistics**						
59					Number of Valid Data	25				Number of Detected Data		14
60					Number of Distinct Detected Data	14				Number of Non-Detect Data		11
61										Percent Non-Detects		44.00%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.024				Minimum Detected		-3.73
65					Maximum Detected	0.99				Maximum Detected		-0.0101
66					Mean of Detected	0.199				Mean of Detected		-2.069
67					SD of Detected	0.245				SD of Detected		0.95
68					Minimum Non-Detect	0.34				Minimum Non-Detect		-1.079
69					Maximum Non-Detect	0.4				Maximum Non-Detect		-0.916
70												
71				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		24
72				For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected		1
73				Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		96.00%
74												
75						**UCL Statistics**						
76				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
77					Shapiro Wilk Test Statistic	0.634				Shapiro Wilk Test Statistic		0.986
78					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
79				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
80												
81				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
82					DL/2 Substitution Method					DL/2 Substitution Method		
83					Mean	0.192				Mean		-1.907
84					SD	0.181				SD		0.724
85					95% DL/2 (t) UCL	0.254				95% H-Stat (DL/2) UCL		0.355
86												
87					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
88				**MLE method failed to converge properly**						Mean in Log Scale		-2.147
89										SD in Log Scale		0.753
90										Mean in Original Scale		0.162
91										SD in Original Scale		0.188
92										95% Percentile Bootstrap UCL		0.226
93										95% BCA Bootstrap UCL		0.261
94												
95				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
96					k star (bias corrected)	1.025				**Data appear Gamma Distributed at 5% Significance Level**		
97					Theta Star	0.194						
98					nu star	28.69						
99												
100					A-D Test Statistic	0.444				**Nonparametric Statistics**		
101					5% A-D Critical Value	0.755				Kaplan-Meier (KM) Method		
102					K-S Test Statistic	0.755				Mean		0.169
103					5% K-S Critical Value	0.234				SD		0.189
104				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.0421
105										95% KM (t) UCL		0.241
106				**Assuming Gamma Distribution**						95% KM (z) UCL		0.238

	A	B	C	D	E	F	G	H	I	J	K	L
107					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.24
108					Minimum	0.024					95% KM (bootstrap t) UCL	0.297
109					Maximum	0.99					95% KM (BCA) UCL	0.248
110					Mean	0.2					95% KM (Percentile Bootstrap) UCL	0.246
111					Median	0.185					95% KM (Chebyshev) UCL	0.352
112					SD	0.181					97.5% KM (Chebyshev) UCL	0.431
113					k star	1.882					99% KM (Chebyshev) UCL	0.587
114					Theta star	0.107						
115					Nu star	94.09					**Potential UCLs to Use**	
116					AppChi2	72.72					95% KM (t) UCL	0.241
117					95% Gamma Approximate UCL	0.259						
118					95% Adjusted Gamma UCL	0.264						
119	**Note: DL/2 is not a recommended method.**											
120												
121												
122	**Dibenzofuran**											
123												
124					**General Statistics**							
125					Number of Valid Data	25					Number of Detected Data	10
126					Number of Distinct Detected Data	10					Number of Non-Detect Data	15
127											Percent Non-Detects	60.00%
128												
129					**Raw Statistics**						**Log-transformed Statistics**	
130					Minimum Detected	0.061					Minimum Detected	-2.797
131					Maximum Detected	1.1					Maximum Detected	0.0953
132					Mean of Detected	0.215					Mean of Detected	-1.995
133					SD of Detected	0.315					SD of Detected	0.833
134					Minimum Non-Detect	0.34					Minimum Non-Detect	-1.079
135					Maximum Non-Detect	0.4					Maximum Non-Detect	-0.916
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	24
138	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
139	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.00%
140												
141					**UCL Statistics**							
142					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
143					Shapiro Wilk Test Statistic	0.502					Shapiro Wilk Test Statistic	0.787
144					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
145					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
146												
147					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
148					DL/2 Substitution Method						DL/2 Substitution Method	
149					Mean	0.197					Mean	-1.814
150					SD	0.194					SD	0.533
151					95% DL/2 (t) UCL	0.263					95% H-Stat (DL/2) UCL	0.323
152												
153					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
154					**MLE method failed to converge properly**						Mean in Log Scale	-2.089
155											SD in Log Scale	0.594
156											Mean in Original Scale	0.161
157											SD in Original Scale	0.201
158											95% Percentile Bootstrap UCL	0.24
159											95% BCA Bootstrap UCL	0.282

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
162					k star (bias corrected)	0.927	**Data do not follow a Discernable Distribution (0.05)**					
163					Theta Star	0.232						
164					nu star	18.53						
165												
166					A-D Test Statistic	1.43	**Nonparametric Statistics**					
167					5% A-D Critical Value	0.744				Kaplan-Meier (KM) Method		
168					K-S Test Statistic	0.744				Mean		0.156
169					5% K-S Critical Value	0.273				SD		0.199
170	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.0441
171										95% KM (t) UCL		0.232
172			**Assuming Gamma Distribution**							95% KM (z) UCL		0.229
173			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		0.23
174					Minimum	0.061				95% KM (bootstrap t) UCL		0.454
175					Maximum	1.1				95% KM (BCA) UCL		0.242
176					Mean	0.215				95% KM (Percentile Bootstrap) UCL		0.235
177					Median	0.198				95% KM (Chebyshev) UCL		0.349
178					SD	0.194				97.5% KM (Chebyshev) UCL		0.432
179					k star	2.48				99% KM (Chebyshev) UCL		0.596
180					Theta star	0.0867						
181					Nu star	124	**Potential UCLs to Use**					
182					AppChi2	99.26				95% KM (t) UCL		0.232
183					95% Gamma Approximate UCL	0.269				95% KM (% Bootstrap) UCL		0.235
184					95% Adjusted Gamma UCL	0.273						
185	**Note: DL/2 is not a recommended method.**											
186												
187												
188	**Dioxin TEQ**											
189												
190					**General Statistics**							
191					Number of Valid Observations	2				Number of Distinct Observations		2
192												
193												
194					**Warning: This data set only has 2 observations!**							
195					**Data set is too small to compute reliable and meaningful statistics and estimates!**							
196					**The data set for variable Dioxin TEQ was not processed!**							
197												
198					**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**							
199					**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**							
200												
201												
202												
203	**Cobalt**											
204												
205					**General Statistics**							
206					Number of Valid Data	25				Number of Detected Data		13
207					Number of Distinct Detected Data	11				Number of Non-Detect Data		12
208										Percent Non-Detects		48.00%
209												
210					**Raw Statistics**					**Log-transformed Statistics**		
211					Minimum Detected	2				Minimum Detected		0.693
212					Maximum Detected	12.8				Maximum Detected		2.549

	A	B	C	D	E	F	G	H	I	J	K	L
213					Mean of Detected	4.715					Mean of Detected	1.426
214					SD of Detected	2.865					SD of Detected	0.488
215					Minimum Non-Detect	7.2					Minimum Non-Detect	1.974
216					Maximum Non-Detect	11					Maximum Non-Detect	2.398
217												
218	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	24
219	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	1
220	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.00%
221												
222					**UCL Statistics**							
223				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
224					Shapiro Wilk Test Statistic	0.761					Shapiro Wilk Test Statistic	0.94
225					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
226				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
227												
228				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
229					DL/2 Substitution Method						DL/2 Substitution Method	
230					Mean	4.746					Mean	1.487
231					SD	2.085					SD	0.367
232					95% DL/2 (t) UCL	5.459					95% H-Stat (DL/2) UCL	6.038
233												
234					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
235				**MLE method failed to converge properly**							Mean in Log Scale	1.383
236											SD in Log Scale	0.38
237											Mean in Original Scale	4.32
238											SD in Original Scale	2.155
239											95% Percentile Bootstrap UCL	5.051
240											95% BCA Bootstrap UCL	5.346
241												
242				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
243					k star (bias corrected)	3.267				**Data appear Gamma Distributed at 5% Significance Level**		
244					Theta Star	1.443						
245					nu star	84.94						
246												
247					A-D Test Statistic	0.603				**Nonparametric Statistics**		
248					5% A-D Critical Value	0.737					Kaplan-Meier (KM) Method	
249					K-S Test Statistic	0.737					Mean	4.344
250					5% K-S Critical Value	0.238					SD	2.244
251				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.543
252											95% KM (t) UCL	5.272
253				**Assuming Gamma Distribution**							95% KM (z) UCL	5.237
254					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5.275
255					Minimum	2					95% KM (bootstrap t) UCL	5.702
256					Maximum	12.8					95% KM (BCA) UCL	5.415
257					Mean	4.818					95% KM (Percentile Bootstrap) UCL	5.256
258					Median	4.884					95% KM (Chebyshev) UCL	6.709
259					SD	2.09					97.5% KM (Chebyshev) UCL	7.733
260					k star	6.426					99% KM (Chebyshev) UCL	9.744
261					Theta star	0.75						
262					Nu star	321.3				**Potential UCLs to Use**		
263					AppChi2	280.8					95% KM (t) UCL	5.272
264					95% Gamma Approximate UCL	5.514						
265					95% Adjusted Gamma UCL	5.565						

	A	B	C	D	E	F	G	H	I	J	K	L
266	**Note: DL/2 is not a recommended method.**											
267												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	3		Number of Distinct Observations		3	
13												
14												
15						Warning: This data set only has 3 observations!						
16						Data set is too small to compute reliable and meaningful statistics and estimates!						
17						The data set for variable Benzo(k)fluoranthene was not processed!						
18												
19						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
20						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
21												
22												
23												
24	Carbazole											
25												
26						General Statistics						
27						Number of Valid Data	3		Number of Detected Data		2	
28						Number of Distinct Detected Data	2		Number of Non-Detect Data		1	
29									Percent Non-Detects		33.33%	
30												
31						Warning: This data set only has 3 observations!						
32						Data set is too small to compute reliable and meaningful statistics and estimates!						
33						The data set for variable Carbazole was not processed!						
34												
35						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
36						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
37												
38												
39												
40	Dibenzofuran											
41												
42						General Statistics						
43						Number of Valid Data	3		Number of Detected Data		1	
44						Number of Distinct Detected Data	1		Number of Non-Detect Data		2	
45									Percent Non-Detects		66.67%	
46												
47						Warning: This data set only has 3 observations!						
48						Data set is too small to compute reliable and meaningful statistics and estimates!						
49						The data set for variable Dibenzofuran was not processed!						
50												
51						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
52						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Phenanthrene**											
57												
58						**General Statistics**						
59					Number of Valid Observations	3				Number of Distinct Observations		3
60												
61												
62						**Warning: This data set only has 3 observations!**						
63						**Data set is too small to compute reliable and meaningful statistics and estimates!**						
64						**The data set for variable Phenanthrene was not processed!**						
65												
66						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**						
67						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**						
68												
69												
70												
71	**Cobalt**											
72												
73						**General Statistics**						
74					Number of Valid Data	3				Number of Detected Data		2
75					Number of Distinct Detected Data	2				Number of Non-Detect Data		1
76										Percent Non-Detects		33.33%
77												
78						**Warning: This data set only has 3 observations!**						
79						**Data set is too small to compute reliable and meaningful statistics and estimates!**						
80						**The data set for variable Cobalt was not processed!**						
81												
82						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**						
83						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**						
84												
85												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	6			Number of Distinct Observations	6	
13												
14						Raw Statistics				Log-transformed Statistics		
15						Minimum	0.36			Minimum of Log Data	-1.022	
16						Maximum	1.8			Maximum of Log Data	0.588	
17						Mean	0.786			Mean of log Data	-0.388	
18						Median	0.648			SD of log Data	0.564	
19						SD	0.524					
20						Coefficient of Variation	0.667					
21						Skewness	1.912					
22												
23												
24						Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!						
25												
26						It is suggested to collect at least 8 to 10 observations using these statistical methods!						
27						If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
28												
29												
30						Warning: There are only 6 Values in this data						
31						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
32						the resulting calculations may not be reliable enough to draw conclusions						
33												
34						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
35												
36						Relevant UCL Statistics						
37						Normal Distribution Test				Lognormal Distribution Test		
38						Shapiro Wilk Test Statistic	0.788			Shapiro Wilk Test Statistic	0.939	
39						Shapiro Wilk Critical Value	0.788			Shapiro Wilk Critical Value	0.788	
40						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
41												
42						Assuming Normal Distribution				Assuming Lognormal Distribution		
43						95% Student's-t UCL	1.217			95% H-UCL	1.609	
44						95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	1.546	
45						95% Adjusted-CLT UCL	1.316			97.5% Chebyshev (MVUE) UCL	1.881	
46						95% Modified-t UCL	1.245			99% Chebyshev (MVUE) UCL	2.538	
47												
48						Gamma Distribution Test				Data Distribution		
49						k star (bias corrected)	1.893			Data appear Normal at 5% Significance Level		
50						Theta Star	0.415					
51						nu star	22.72					
52						Approximate Chi Square Value (.05)	12.88			Nonparametric Statistics		
53						Adjusted Level of Significance	0.0122			95% CLT UCL	1.138	

	A	B	C	D	E	F	G	H	I	J	K	L
54					Adjusted Chi Square Value	10.31					95% Jackknife UCL	1.217
55											95% Standard Bootstrap UCL	1.107
56					Anderson-Darling Test Statistic	0.386					95% Bootstrap-t UCL	1.747
57					Anderson-Darling 5% Critical Value	0.701					95% Hall's Bootstrap UCL	2.588
58					Kolmogorov-Smirnov Test Statistic	0.241					95% Percentile Bootstrap UCL	1.15
59					Kolmogorov-Smirnov 5% Critical Value	0.334					95% BCA Bootstrap UCL	1.231
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.719
61											97.5% Chebyshev(Mean, Sd) UCL	2.122
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2.915
63					95% Approximate Gamma UCL	1.386						
64					95% Adjusted Gamma UCL	1.732						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	1.217
67												
68												
69	**Carbazole**											
70												
71					**General Statistics**							
72					Number of Valid Data	6					Number of Detected Data	5
73					Number of Distinct Detected Data	5					Number of Non-Detect Data	1
74											Percent Non-Detects	16.67%
75												
76					**Raw Statistics**						**Log-transformed Statistics**	
77					Minimum Detected	0.07					Minimum Detected	-2.659
78					Maximum Detected	0.23					Maximum Detected	-1.47
79					Mean of Detected	0.153					Mean of Detected	-1.968
80					SD of Detected	0.0665					SD of Detected	0.497
81					Minimum Non-Detect	0.41					Minimum Non-Detect	-0.892
82					Maximum Non-Detect	0.41					Maximum Non-Detect	-0.892
83												
84												
85					**Warning: There are only 5 Detected Values in this data**							
86					**Note: It should be noted that even though bootstrap may be performed on this data set**							
87					**the resulting calculations may not be reliable enough tp draw conclusions**							
88												
89					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
90												
91												
92					**UCL Statistics**							
93					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
94					Shapiro Wilk Test Statistic	0.945					Shapiro Wilk Test Statistic	0.917
95					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
96					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
97												
98					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
99					DL/2 Substitution Method						DL/2 Substitution Method	
100					Mean	0.162					Mean	-1.904
101					SD	0.0631					SD	0.471
102					95% DL/2 (t) UCL	0.214					95% H-Stat (DL/2) UCL	0.407
103												
104					Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method	
105					**MLE method failed to converge properly**						Mean in Log Scale	-1.968
106											SD in Log Scale	0.444

	A	B	C	D	E	F	G	H	I	J	K	L
107											Mean in Original Scale	0.151
108											SD in Original Scale	0.0597
109											95% Percentile Bootstrap UCL	0.188
110											95% BCA Bootstrap UCL	0.188
111												
112				**Gamma Distribution Test with Detected Values Only**					**Data Distribution Test with Detected Values Only**			
113					k star (bias corrected)	2.412			**Data appear Normal at 5% Significance Level**			
114					Theta Star	0.0634						
115					nu star	24.12						
116												
117					A-D Test Statistic	0.319			**Nonparametric Statistics**			
118					5% A-D Critical Value	0.68					Kaplan-Meier (KM) Method	
119					K-S Test Statistic	0.68					Mean	0.153
120					5% K-S Critical Value	0.358					SD	0.0595
121				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0297
122											95% KM (t) UCL	0.213
123				**Assuming Gamma Distribution**							95% KM (z) UCL	0.202
124					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.214
125					Minimum	0.07					95% KM (bootstrap t) UCL	0.213
126					Maximum	0.23					95% KM (BCA) UCL	0.197
127					Mean	0.154					95% KM (Percentile Bootstrap) UCL	0.198
128					Median	0.164					95% KM (Chebyshev) UCL	0.283
129					SD	0.0595					97.5% KM (Chebyshev) UCL	0.339
130					k star	3.509					99% KM (Chebyshev) UCL	0.449
131					Theta star	0.0439						
132					Nu star	42.11			**Potential UCLs to Use**			
133					AppChi2	28.23					95% KM (t) UCL	0.213
134					95% Gamma Approximate UCL	0.23					95% KM (Percentile Bootstrap) UCL	0.198
135					95% Adjusted Gamma UCL	0.268						
136	**Note: DL/2 is not a recommended method.**											
137												
138												
139	**Dibenzofuran**											
140												
141						**General Statistics**						
142					Number of Valid Data	6					Number of Detected Data	4
143					Number of Distinct Detected Data	4					Number of Non-Detect Data	2
144											Percent Non-Detects	33.33%
145												
146				**Raw Statistics**					**Log-transformed Statistics**			
147					Minimum Detected	0.0565					Minimum Detected	-2.874
148					Maximum Detected	0.098					Maximum Detected	-2.323
149					Mean of Detected	0.0746					Mean of Detected	-2.622
150					SD of Detected	0.0198					SD of Detected	0.265
151					Minimum Non-Detect	0.4					Minimum Non-Detect	-0.916
152					Maximum Non-Detect	0.41					Maximum Non-Detect	-0.892
153												
154	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
155	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
156	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
157												
158					**Warning: There are only 4 Distinct Detected Values in this data**							
159					**Note: It should be noted that even though bootstrap may be performed on this data set**							

	A	B	C	D	E	F	G	H	I	J	K	L
160	the resulting calculations may not be reliable enough tp draw conclusions											
161												
162	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
163												
164												
165	UCL Statistics											
166	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
167					Shapiro Wilk Test Statistic	0.9			Shapiro Wilk Test Statistic			0.899
168					5% Shapiro Wilk Critical Value	0.748			5% Shapiro Wilk Critical Value			0.748
169	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
170												
171	Assuming Normal Distribution						Assuming Lognormal Distribution					
172					DL/2 Substitution Method				DL/2 Substitution Method			
173					Mean	0.117			Mean			-2.28
174					SD	0.0678			SD			0.568
175					95% DL/2 (t) UCL	0.173			95% H-Stat (DL/2) UCL			0.578
176												
177					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
178	MLE method failed to converge properly								Mean in Log Scale			-2.622
179									SD in Log Scale			0.205
180									Mean in Original Scale			0.074
181									SD in Original Scale			0.0154
182									95% Percentile Bootstrap UCL			0.0844
183									95% BCA Bootstrap UCL			0.0845
184												
185	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
186					k star (bias corrected)	4.946	Data appear Normal at 5% Significance Level					
187					Theta Star	0.0151						
188					nu star	39.57						
189												
190					A-D Test Statistic	0.379	Nonparametric Statistics					
191					5% A-D Critical Value	0.657			Kaplan-Meier (KM) Method			
192					K-S Test Statistic	0.657			Mean			0.0746
193					5% K-S Critical Value	0.394			SD			0.0172
194	Data appear Gamma Distributed at 5% Significance Level								SE of Mean			0.0099
195									95% KM (t) UCL			0.0946
196	Assuming Gamma Distribution								95% KM (z) UCL			0.0909
197					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL			0.0957
198					Minimum	0.0565			95% KM (bootstrap t) UCL			0.235
199					Maximum	0.098			95% KM (BCA) UCL			0.091
200					Mean	0.0753			95% KM (Percentile Bootstrap) UCL			0.091
201					Median	0.0767			95% KM (Chebyshev) UCL			0.118
202					SD	0.0154			97.5% KM (Chebyshev) UCL			0.136
203					k star	14.34			99% KM (Chebyshev) UCL			0.173
204					Theta star	0.00525						
205					Nu star	172.1	Potential UCLs to Use					
206					AppChi2	142.7			95% KM (t) UCL			0.0946
207					95% Gamma Approximate UCL	0.0908			95% KM (Percentile Bootstrap) UCL			0.091
208					95% Adjusted Gamma UCL	N/A						
209	Note: DL/2 is not a recommended method.											
210												
211												
212	Cobalt											

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214						General Statistics						
215					Number of Valid Data	6				Number of Detected Data		0
216					Number of Distinct Detected Data	0				Number of Non-Detect Data		6
217										Percent Non-Detects		100.00%
218												
219						Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!						
220						Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!						
221						The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
222												
223						The data set for variable Cobalt was not processed!						
224												
225												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11						General Statistics						
12						Number of Valid Data	3		Number of Detected Data			0
13						Number of Distinct Detected Data	0		Number of Non-Detect Data			3
14									Percent Non-Detects			100.00%
15												
16						Warning: This data set only has 3 observations!						
17						Data set is too small to compute reliable and meaningful statistics and estimates!						
18						The data set for variable 1,4-Dichlorobenzene was not processed!						
19												
20						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
21						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
22												
23												
24												
25	Benzo(g,h,i)perylene											
26												
27						General Statistics						
28						Number of Valid Data	3		Number of Detected Data			1
29						Number of Distinct Detected Data	1		Number of Non-Detect Data			2
30									Percent Non-Detects			66.67%
31												
32						Warning: This data set only has 3 observations!						
33						Data set is too small to compute reliable and meaningful statistics and estimates!						
34						The data set for variable Benzo(g,h,i)perylene was not processed!						
35												
36						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
37						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
38												
39												
40												
41	Cobalt											
42												
43						General Statistics						
44						Number of Valid Data	3		Number of Detected Data			1
45						Number of Distinct Detected Data	1		Number of Non-Detect Data			2
46									Percent Non-Detects			66.67%
47												
48						Warning: This data set only has 3 observations!						
49						Data set is too small to compute reliable and meaningful statistics and estimates!						
50						The data set for variable Cobalt was not processed!						
51												
52						It is suggested to collect at least 8 to 10 observations before using these statistical methods!						
53						If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56												
57	**Naphthalene**											
58												
59						**General Statistics**						
60						Number of Valid Data	3			Number of Detected Data		0
61						Number of Distinct Detected Data	0			Number of Non-Detect Data		3
62										Percent Non-Detects		100.00%
63												
64						**Warning: This data set only has 3 observations!**						
65						**Data set is too small to compute reliable and meaningful statistics and estimates!**						
66						**The data set for variable Naphthalene was not processed!**						
67												
68						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**						
69						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**						
70												
71												
72												
73	**Phenanthrene**											
74												
75						**General Statistics**						
76						Number of Valid Data	3			Number of Detected Data		1
77						Number of Distinct Detected Data	1			Number of Non-Detect Data		2
78										Percent Non-Detects		66.67%
79												
80						**Warning: This data set only has 3 observations!**						
81						**Data set is too small to compute reliable and meaningful statistics and estimates!**						
82						**The data set for variable Phenanthrene was not processed!**						
83												
84						**It is suggested to collect at least 8 to 10 observations before using these statistical methods!**						
85						**If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.**						
86												
87												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SD.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	22			Number of Distinct Observations	20	
13												
14						Raw Statistics				Log-transformed Statistics		
15						Minimum	0.004			Minimum of Log Data	-5.521	
16						Maximum	1.9			Maximum of Log Data	0.642	
17						Mean	0.385			Mean of log Data	-1.958	
18						Median	0.0735			SD of log Data	1.582	
19						SD	0.514					
20						Coefficient of Variation	1.333					
21						Skewness	1.618					
22												
23						Relevant UCL Statistics						
24						Normal Distribution Test				Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.737			Shapiro Wilk Test Statistic	0.917	
26						Shapiro Wilk Critical Value	0.911			Shapiro Wilk Critical Value	0.911	
27						Data not Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
28												
29						Assuming Normal Distribution				Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.574			95% H-UCL	1.602	
31						95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	1.235	
32						95% Adjusted-CLT UCL	0.606			97.5% Chebyshev (MVUE) UCL	1.578	
33						95% Modified-t UCL	0.58			99% Chebyshev (MVUE) UCL	2.253	
34												
35						Gamma Distribution Test				Data Distribution		
36						k star (bias corrected)	0.56			Data appear Lognormal at 5% Significance Level		
37						Theta Star	0.687					
38						nu star	24.65					
39						Approximate Chi Square Value (.05)	14.34			Nonparametric Statistics		
40						Adjusted Level of Significance	0.0386			95% CLT UCL	0.565	
41						Adjusted Chi Square Value	13.76			95% Jackknife UCL	0.574	
42										95% Standard Bootstrap UCL	0.559	
43						Anderson-Darling Test Statistic	1.267			95% Bootstrap-t UCL	0.648	
44						Anderson-Darling 5% Critical Value	0.795			95% Hall's Bootstrap UCL	0.619	
45						Kolmogorov-Smirnov Test Statistic	0.253			95% Percentile Bootstrap UCL	0.576	
46						Kolmogorov-Smirnov 5% Critical Value	0.194			95% BCA Bootstrap UCL	0.614	
47						Data not Gamma Distributed at 5% Significance Level				95% Chebyshev(Mean, Sd) UCL	0.862	
48										97.5% Chebyshev(Mean, Sd) UCL	1.069	
49						Assuming Gamma Distribution				99% Chebyshev(Mean, Sd) UCL	1.474	
50						95% Approximate Gamma UCL	0.662					
51						95% Adjusted Gamma UCL	0.69					
52												
53						Potential UCL to Use				Use 95% Chebyshev (MVUE) UCL	1.235	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Carbazole**											
57												
58						**General Statistics**						
59					Number of Valid Data	22				Number of Detected Data		5
60					Number of Distinct Detected Data	5				Number of Non-Detect Data		17
61										Percent Non-Detects		77.27%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.034				Minimum Detected		-3.381
65					Maximum Detected	0.46				Maximum Detected		-0.777
66					Mean of Detected	0.17				Mean of Detected		-2.172
67					SD of Detected	0.172				SD of Detected		1.013
68					Minimum Non-Detect	0.1				Minimum Non-Detect		-2.303
69					Maximum Non-Detect	0.6				Maximum Non-Detect		-0.511
70												
71	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		22
72	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
73	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
74												
75					**Warning: There are only 5 Detected Values in this data**							
76					**Note: It should be noted that even though bootstrap may be performed on this data set**							
77					**the resulting calculations may not be reliable enough tp draw conclusions**							
78												
79					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
80												
81												
82						**UCL Statistics**						
83				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
84					Shapiro Wilk Test Statistic	0.829				Shapiro Wilk Test Statistic		0.984
85					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
86				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
87												
88				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
89					DL/2 Substitution Method					DL/2 Substitution Method		
90					Mean	0.202				Mean		-1.789
91					SD	0.106				SD		0.707
92					95% DL/2 (t) UCL	0.241				95% H-Stat (DL/2) UCL		0.377
93												
94					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
95				**MLE method failed to converge properly**						Mean in Log Scale		-2.617
96										SD in Log Scale		0.557
97										Mean in Original Scale		0.0899
98										SD in Original Scale		0.0887
99										95% Percentile Bootstrap UCL		0.124
100										95% BCA Bootstrap UCL		0.147
101												
102				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
103					k star (bias corrected)	0.69				**Data appear Normal at 5% Significance Level**		
104					Theta Star	0.247						
105					nu star	6.896						
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107					A-D Test Statistic	0.241	**Nonparametric Statistics**					
108					5% A-D Critical Value	0.687					Kaplan-Meier (KM) Method	
109					K-S Test Statistic	0.687					Mean	0.107
110					5% K-S Critical Value	0.362					SD	0.113
111	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0379
112											95% KM (t) UCL	0.172
113			**Assuming Gamma Distribution**								95% KM (z) UCL	0.169
114					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.171
115					Minimum	0.034					95% KM (bootstrap t) UCL	0.203
116					Maximum	0.46					95% KM (BCA) UCL	0.223
117					Mean	0.203					95% KM (Percentile Bootstrap) UCL	0.193
118					Median	0.209					95% KM (Chebyshev) UCL	0.272
119					SD	0.107					97.5% KM (Chebyshev) UCL	0.344
120					k star	2.977					99% KM (Chebyshev) UCL	0.484
121					Theta star	0.0682						
122					Nu star	131	**Potential UCLs to Use**					
123					AppChi2	105.6					95% KM (t) UCL	0.172
124					95% Gamma Approximate UCL	0.252					95% KM (Percentile Bootstrap) UCL	0.193
125					95% Adjusted Gamma UCL	0.256						
126	**Note: DL/2 is not a recommended method.**											
127												
128												
129	**Cobalt**											
130												
131					**General Statistics**							
132					Number of Valid Data	22					Number of Detected Data	14
133					Number of Distinct Detected Data	14					Number of Non-Detect Data	8
134											Percent Non-Detects	36.36%
135												
136					**Raw Statistics**						**Log-transformed Statistics**	
137					Minimum Detected	3.1					Minimum Detected	1.131
138					Maximum Detected	32.5					Maximum Detected	3.481
139					Mean of Detected	12.91					Mean of Detected	2.262
140					SD of Detected	9.739					SD of Detected	0.824
141					Minimum Non-Detect	9.7					Minimum Non-Detect	2.272
142					Maximum Non-Detect	15					Maximum Non-Detect	2.708
143												
144	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	17
145	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	5
146	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	77.27%
147												
148					**UCL Statistics**							
149					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
150					Shapiro Wilk Test Statistic	0.875					Shapiro Wilk Test Statistic	0.915
151					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
152					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
153												
154					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
155					DL/2 Substitution Method						DL/2 Substitution Method	
156					Mean	10.41					Mean	2.088
157					SD	8.399					SD	0.698
158					95% DL/2 (t) UCL	13.49					95% H-Stat (DL/2) UCL	13.52
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
161			**MLE method failed to converge properly**								Mean in Log Scale	2.058
162											SD in Log Scale	0.722
163											Mean in Original Scale	10.27
164											SD in Original Scale	8.502
165											95% Percentile Bootstrap UCL	13.53
166											95% BCA Bootstrap UCL	13.94
167												
168			**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**			
169					k star (bias corrected)	1.491			**Data appear Normal at 5% Significance Level**			
170					Theta Star	8.655						
171					nu star	41.76						
172												
173					A-D Test Statistic	0.538			**Nonparametric Statistics**			
174					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
175					K-S Test Statistic	0.747					Mean	10.23
176					5% K-S Critical Value	0.232					SD	8.429
177			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	1.917
178											95% KM (t) UCL	13.52
179			**Assuming Gamma Distribution**								95% KM (z) UCL	13.38
180					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	13.5
181					Minimum	3.1					95% KM (bootstrap t) UCL	14.27
182					Maximum	32.5					95% KM (BCA) UCL	13.43
183					Mean	12.81					95% KM (Percentile Bootstrap) UCL	13.34
184					Median	11.6					95% KM (Chebyshev) UCL	18.58
185					SD	7.805					97.5% KM (Chebyshev) UCL	22.2
186					k star	2.379					99% KM (Chebyshev) UCL	29.3
187					Theta star	5.385						
188					Nu star	104.7			**Potential UCLs to Use**			
189					AppChi2	82.08					95% KM (t) UCL	13.52
190					95% Gamma Approximate UCL	16.34					95% KM (Percentile Bootstrap) UCL	13.34
191					95% Adjusted Gamma UCL	16.65						
192	**Note: DL/2 is not a recommended method.**											
193												
194												
195	**Thallium**											
196												
197						**General Statistics**						
198					Number of Valid Data	22					Number of Detected Data	4
199					Number of Distinct Detected Data	4					Number of Non-Detect Data	18
200											Percent Non-Detects	81.82%
201												
202			**Raw Statistics**						**Log-transformed Statistics**			
203					Minimum Detected	0.071					Minimum Detected	-2.645
204					Maximum Detected	0.52					Maximum Detected	-0.654
205					Mean of Detected	0.32					Mean of Detected	-1.369
206					SD of Detected	0.195					SD of Detected	0.893
207					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
208					Maximum Non-Detect	0.76					Maximum Non-Detect	-0.274
209												
210	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	22
211	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected	0
212	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Warning: There are only 4 Distinct Detected Values in this data											
215	Note: It should be noted that even though bootstrap may be performed on this data set											
216	the resulting calculations may not be reliable enough tp draw conclusions											
217												
218	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
219												
220												
221	UCL Statistics											
222	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
223					Shapiro Wilk Test Statistic	0.973			Shapiro Wilk Test Statistic			0.869
224					5% Shapiro Wilk Critical Value	0.748			5% Shapiro Wilk Critical Value			0.748
225	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
226												
227	Assuming Normal Distribution						Assuming Lognormal Distribution					
228					DL/2 Substitution Method				DL/2 Substitution Method			
229					Mean	0.291			Mean			-1.297
230					SD	0.0921			SD			0.393
231					95% DL/2 (t) UCL	0.324			95% H-Stat (DL/2) UCL			0.458
232												
233					Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method			
234	MLE method failed to converge properly								Mean in Log Scale			-1.765
235									SD in Log Scale			0.437
236									Mean in Original Scale			0.19
237									SD in Original Scale			0.103
238									95% Percentile Bootstrap UCL			0.226
239									95% BCA Bootstrap UCL			0.237
240												
241	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
242					k star (bias corrected)	0.748	Data appear Normal at 5% Significance Level					
243					Theta Star	0.428						
244					nu star	5.981						
245												
246					A-D Test Statistic	0.35	Nonparametric Statistics					
247					5% A-D Critical Value	0.66			Kaplan-Meier (KM) Method			
248					K-S Test Statistic	0.66			Mean			0.235
249					5% K-S Critical Value	0.397			SD			0.151
250	Data appear Gamma Distributed at 5% Significance Level								SE of Mean			0.0787
251									95% KM (t) UCL			0.37
252	Assuming Gamma Distribution								95% KM (z) UCL			0.364
253					Gamma ROS Statistics using Extrapolated Data				95% KM (jackknife) UCL			0.428
254					Minimum	0.071			95% KM (bootstrap t) UCL			0.349
255					Maximum	0.533			95% KM (BCA) UCL			0.453
256					Mean	0.367			95% KM (Percentile Bootstrap) UCL			0.44
257					Median	0.364			95% KM (Chebyshev) UCL			0.578
258					SD	0.108			97.5% KM (Chebyshev) UCL			0.726
259					k star	7.19			99% KM (Chebyshev) UCL			1.018
260					Theta star	0.051						
261					Nu star	316.3	Potential UCLs to Use					
262					AppChi2	276.1			95% KM (t) UCL			0.37
263					95% Gamma Approximate UCL	0.42			95% KM (Percentile Bootstrap) UCL			0.44
264					95% Adjusted Gamma UCL	N/A						
265	Note: DL/2 is not a recommended method.											

	A	B	C	D	E	F	G	H	I	J	K	L
266												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SS.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(b)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Observations	5			Number of Distinct Observations	5	
13												
14						Raw Statistics				Log-transformed Statistics		
15						Minimum	0.039			Minimum of Log Data	-3.244	
16						Maximum	0.18			Maximum of Log Data	-1.715	
17						Mean	0.105			Mean of log Data	-2.393	
18						Median	0.12			SD of log Data	0.63	
19						SD	0.0571					
20						Coefficient of Variation	0.542					
21						Skewness	0.0759					
22												
23												
24						Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!						
25												
26						It is suggested to collect at least 8 to 10 observations using these statistical methods!						
27						If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.						
28												
29												
30						Warning: There are only 5 Values in this data						
31						Note: It should be noted that even though bootstrap methods may be performed on this data set,						
32						the resulting calculations may not be reliable enough to draw conclusions						
33												
34						The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.						
35												
36						Relevant UCL Statistics						
37						Normal Distribution Test				Lognormal Distribution Test		
38						Shapiro Wilk Test Statistic	0.946			Shapiro Wilk Test Statistic	0.923	
39						Shapiro Wilk Critical Value	0.762			Shapiro Wilk Critical Value	0.762	
40						Data appear Normal at 5% Significance Level				Data appear Lognormal at 5% Significance Level		
41												
42						Assuming Normal Distribution				Assuming Lognormal Distribution		
43						95% Student's-t UCL	0.16			95% H-UCL	0.325	
44						95% UCLs (Adjusted for Skewness)				95% Chebyshev (MVUE) UCL	0.236	
45						95% Adjusted-CLT UCL	0.148			97.5% Chebyshev (MVUE) UCL	0.292	
46						95% Modified-t UCL	0.16			99% Chebyshev (MVUE) UCL	0.401	
47												
48						Gamma Distribution Test				Data Distribution		
49						k star (bias corrected)	1.592			Data appear Normal at 5% Significance Level		
50						Theta Star	0.0662					
51						nu star	15.92					
52						Approximate Chi Square Value (.05)	7.904			Nonparametric Statistics		
53						Adjusted Level of Significance	0.0086			95% CLT UCL	0.147	

	A	B	C	D	E	F	G	H	I	J	K	L
54					Adjusted Chi Square Value	5.61					95% Jackknife UCL	0.16
55											95% Standard Bootstrap UCL	0.143
56					Anderson-Darling Test Statistic	0.318					95% Bootstrap-t UCL	0.167
57					Anderson-Darling 5% Critical Value	0.682					95% Hall's Bootstrap UCL	0.138
58					Kolmogorov-Smirnov Test Statistic	0.265					95% Percentile Bootstrap UCL	0.146
59					Kolmogorov-Smirnov 5% Critical Value	0.359					95% BCA Bootstrap UCL	0.144
60					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	0.217
61											97.5% Chebyshev(Mean, Sd) UCL	0.265
62					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	0.359
63					95% Approximate Gamma UCL	0.212						
64					95% Adjusted Gamma UCL	0.299						
65												
66					**Potential UCL to Use**						Use 95% Student's-t UCL	0.16
67												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SW.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	beta-BHC											
10												
11						General Statistics						
12						Number of Valid Data	16			Number of Detected Data		3
13						Number of Distinct Detected Data	3			Number of Non-Detect Data		13
14										Percent Non-Detects		81.25%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.0036			Minimum Detected		-5.627
18						Maximum Detected	0.01			Maximum Detected		-4.605
19						Mean of Detected	0.006			Mean of Detected		-5.219
20						SD of Detected	0.00349			SD of Detected		0.541
21						Minimum Non-Detect	0.0025			Minimum Non-Detect		-5.991
22						Maximum Non-Detect	0.0025			Maximum Non-Detect		-5.991
23												
24												
25						Warning: There are only 3 Distinct Detected Values in this data set						
26						The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.						
27						Those methods will return a 'N/A' value on your output display!						
28												
29						It is necessary to have 4 or more Distinct Values for bootstrap methods.						
30						It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.						
31												
32												
33						UCL Statistics						
34				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
35						Shapiro Wilk Test Statistic	0.842			Shapiro Wilk Test Statistic		0.891
36						5% Shapiro Wilk Critical Value	0.767			5% Shapiro Wilk Critical Value		0.767
37				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
38												
39				Assuming Normal Distribution						Assuming Lognormal Distribution		
40						DL/2 Substitution Method				DL/2 Substitution Method		
41						Mean	0.00214			Mean		-6.41
42						SD	0.0023			SD		0.623
43						95% DL/2 (t) UCL	0.00315			95% H-Stat (DL/2) UCL		0.00236
44												
45						Maximum Likelihood Estimate(MLE) Method				Log ROS Method		
46						Mean	0.00677			Mean in Log Scale		-7.578
47						SD	0.00285			SD in Log Scale		1.597
48						95% MLE (t) UCL	0.00802			Mean in Original Scale		0.00154
49						95% MLE (Tiku) UCL	0.00957			SD in Original Scale		0.00259
50										95% Percentile Bootstrap UCL		0.00274
51										95% BCA Bootstrap UCL		0.00314
52												
53				Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only		

	A	B	C	D	E	F	G	H	I	J	K	L
54					k star (bias corrected)	N/A		Data appear Normal at 5% Significance Level				
55					Theta Star	N/A						
56					nu star	N/A						
57												
58					A-D Test Statistic	0.428		Nonparametric Statistics				
59					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
60					K-S Test Statistic	N/A				Mean		0.00405
61					5% K-S Critical Value	N/A				SD		0.00155
62		Data not Gamma Distributed at 5% Significance Level								SE of Mean		0.0004741
63										95% KM (t) UCL		0.00488
64		Assuming Gamma Distribution								95% KM (z) UCL		0.00483
65			Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL		0.00478
66					Minimum	N/A				95% KM (bootstrap t) UCL		0.00629
67					Maximum	N/A				95% KM (BCA) UCL		0.01
68					Mean	N/A				95% KM (Percentile Bootstrap) UCL		0.01
69					Median	N/A				95% KM (Chebyshev) UCL		0.00612
70					SD	N/A				97.5% KM (Chebyshev) UCL		0.00701
71					k star	N/A				99% KM (Chebyshev) UCL		0.00877
72					Theta star	N/A						
73					Nu star	N/A		Potential UCLs to Use				
74					AppChi2	N/A				95% KM (t) UCL		0.00488
75					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		0.01
76					95% Adjusted Gamma UCL	N/A						
77	Note: DL/2 is not a recommended method.											
78												
79												
80	bis(2-Ethylhexyl)phthalate											
81												
82					General Statistics							
83					Number of Valid Data	15				Number of Detected Data		1
84					Number of Distinct Detected Data	1				Number of Non-Detect Data		14
85										Percent Non-Detects		93.33%
86												
87	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
88	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
89												
90	The data set for variable bis(2-Ethylhexyl)phthalate was not processed!											
91												
92												
93												
94	Chrysene											
95												
96					General Statistics							
97					Number of Valid Data	16				Number of Detected Data		1
98					Number of Distinct Detected Data	1				Number of Non-Detect Data		15
99										Percent Non-Detects		93.75%
100												
101	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
102	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
103												
104	The data set for variable Chrysene was not processed!											
105												
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Cobalt**											
109												
110						**General Statistics**						
111					Number of Valid Data	16				Number of Detected Data		5
112					Number of Distinct Detected Data	5				Number of Non-Detect Data		11
113										Percent Non-Detects		68.75%
114												
115				**Raw Statistics**						**Log-transformed Statistics**		
116					Minimum Detected	0.72				Minimum Detected		-0.329
117					Maximum Detected	6.7				Maximum Detected		1.902
118					Mean of Detected	2.404				Mean of Detected		0.561
119					SD of Detected	2.44				SD of Detected		0.831
120					Minimum Non-Detect	0.4				Minimum Non-Detect		-0.916
121					Maximum Non-Detect	50				Maximum Non-Detect		3.912
122												
123	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		16
124	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected		0
125	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
126												
127					**Warning: There are only 5 Detected Values in this data**							
128					**Note: It should be noted that even though bootstrap may be performed on this data set**							
129					**the resulting calculations may not be reliable enough tp draw conclusions**							
130												
131					**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**							
132												
133												
134						**UCL Statistics**						
135				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
136					Shapiro Wilk Test Statistic	0.721				Shapiro Wilk Test Statistic		0.919
137					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
138				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
139												
140				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
141					DL/2 Substitution Method					DL/2 Substitution Method		
142					Mean	2.563				Mean		-0.278
143					SD	6.19				SD		1.334
144					95% DL/2 (t) UCL	5.275				95% H-Stat (DL/2) UCL		3.448
145												
146					Maximum Likelihood Estimate(MLE) Method	N/A				Log ROS Method		
147				**MLE method failed to converge properly**						Mean in Log Scale		-1.007
148										SD in Log Scale		1.22
149										Mean in Original Scale		0.884
150										SD in Original Scale		1.647
151										95% Percentile Bootstrap UCL		1.623
152										95% BCA Bootstrap UCL		2.029
153												
154				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
155					k star (bias corrected)	0.824				**Data appear Gamma Distributed at 5% Significance Level**		
156					Theta Star	2.916						
157					nu star	8.244						
158												
159					A-D Test Statistic	0.498				**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
160					5% A-D Critical Value	0.686					Kaplan-Meier (KM) Method	
161					K-S Test Statistic	0.686					Mean	1.288
162					5% K-S Critical Value	0.361					SD	1.488
163	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.43
164											95% KM (t) UCL	2.042
165			**Assuming Gamma Distribution**								95% KM (z) UCL	1.996
166			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	1.908
167					Minimum	0.72					95% KM (bootstrap t) UCL	3.22
168					Maximum	6.7					95% KM (BCA) UCL	2.586
169					Mean	2.446					95% KM (Percentile Bootstrap) UCL	2.294
170					Median	2.401					95% KM (Chebyshev) UCL	3.163
171					SD	1.267					97.5% KM (Chebyshev) UCL	3.974
172					k star	4.224					99% KM (Chebyshev) UCL	5.567
173					Theta star	0.579						
174					Nu star	135.2					**Potential UCLs to Use**	
175					AppChi2	109.3					95% KM (t) UCL	2.042
176					95% Gamma Approximate UCL	3.025						
177					95% Adjusted Gamma UCL	3.1						
178	**Note: DL/2 is not a recommended method.**											
179												

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	U:\JCV\Puritan\2006\ucl data\soils\surface\quinn_ucl_data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

bis(2-Ethylhexyl)phthalate

General Statistics

Number of Valid Samples	19	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	15
		Percent Non-Detects	78.95%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	220	Minimum Detected	5.394
Maximum Detected	4100	Maximum Detected	8.319
Mean of Detected	1305	Mean of Detected	6.457
SD of Detected	1870	SD of Detected	1.307
Minimum Non-Detect	160	Minimum Non-Detect	5.075
Maximum Non-Detect	1600	Maximum Non-Detect	7.378

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	18
For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	1
those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	94.74%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.702	Shapiro Wilk Test Statistic	0.876
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	433.7	Mean	5.377
SD	906.2	SD	0.954
95% DL/2 (t) UCL	794.2	95% H-Stat (DL/2) UCL	459
Maximum Likelihood Estimate(MLE) Method	N/A	Robust ROS Method	
		Mean in Log Scale	3.809
		SD in Log Scale	1.575
		Mean in Original Scale	294.7
		SD in Original Scale	932.9
		95% Percentile Bootstrap UCL	716
		95% BCA Bootstrap UCL	952.3

Gamma Distribution Test with Detected Values Only		Nonparametic Test with Detected Values Only
k star (bias corrected)	0.373	Data appear Gamma Distributed at 5% Significance Level
Theta Star	3500	
nu star	2.983	
A-D Test Statistic	0.538	
5% A-D Critical Value	0.669	
K-S Test Statistic	0.669	
5% K-S Critical Value	0.404	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	N/A	Mean	453.7
Maximum	N/A	SD	863.8
Mean	N/A	SE of Mean	229
Median	N/A	95% KM (t) UCL	850.8
SD	N/A	95% KM (z) UCL	830.4
k star	N/A	95% KM (jackknife) UCL	766.3
Theta star	N/A	95% KM (bootstrap t) UCL	2506
Nu star	N/A	95% KM (BCA) UCL	1E+31
AppChi2	N/A	95% KM (percentile) UCL	1144
95% Gamma Approximate UCL	N/A	95% KM (Chebyshev) UCL	1452
95% Adjusted Gamma UCL	N/A	97.5% KM (Chebyshev) UCL	1884
		99% KM (Chebyshev) UCL	2732
		Potential UCLs to Use	
		95% KM (t) UCL	850.8

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	H:\JCV\Puritan\2006\ucl data\fish\BR1_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Arsenic											
10												
11						General Statistics						
12						Number of Valid Samples	16			Number of Unique Samples	15	
13												
14				Raw Statistics						Log-transformed Statistics		
15						Minimum	0.037			Minimum of Log Data	-3.297	
16						Maximum	0.13			Maximum of Log Data	-2.04	
17						Mean	0.073			Mean of log Data	-2.682	
18						Median	0.0715			SD of log Data	0.372	
19						SD	0.0272					
20						Coefficient of Variation	0.373					
21						Skewness	0.688					
22												
23						Relevant UCL Statistics						
24				Normal Distribution Test						Lognormal Distribution Test		
25						Shapiro Wilk Test Statistic	0.94			Shapiro Wilk Test Statistic	0.971	
26						Shapiro Wilk Critical Value	0.887			Shapiro Wilk Critical Value	0.887	
27				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
28												
29				Assuming Normal Distribution						Assuming Lognormal Distribution		
30						95% Student's-t UCL	0.0849			95% H-UCL	0.0883	
31				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	0.103	
32						95% Adjusted-CLT UCL	0.0854			97.5% Chebyshev (MVUE) UCL	0.116	
33						95% Modified-t UCL	0.0851			99% Chebyshev (MVUE) UCL	0.142	
34												
35				Gamma Distribution Test						Nonparametric Test		
36						k star (bias corrected)	6.481			Data appear Normal at 5% Significance Level		
37						Theta Star	0.0113					
38						nu star	207.4					
39						Approximate Chi Square Value (.05)	175.1			Nonparametric Statistics		
40						Adjusted Level of Significance	0.0335			95% CLT UCL	0.0842	
41						Adjusted Chi Square Value	171.7			95% Jackknife UCL	0.0849	
42										95% Standard Bootstrap UCL	0.0841	
43						Anderson-Darling Test Statistic	0.211			95% Bootstrap-t UCL	0.0871	
44						Anderson-Darling 5% Critical Value	0.74			95% Hall's Bootstrap UCL	0.0862	
45						Kolmogorov-Smirnov Test Statistic	0.099			95% Percentile Bootstrap UCL	0.0848	
46						Kolmogorov-Smirnov 5% Critical Value	0.215			95% BCA Bootstrap UCL	0.0854	
47				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	0.103	
48										97.5% Chebyshev(Mean, Sd) UCL	0.115	
49				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	0.141	
50						95% Approximate Gamma UCL	0.0865					
51						95% Adjusted Gamma UCL	0.0882					
52												
53				Potential UCL to Use						Use 95% Student's-t UCL	0.0849	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Cadmium**											
57												
58						**General Statistics**						
59					Number of Valid Samples	16				Number of Detected Data		11
60					Number of Unique Samples	10				Number of Non-Detect Data		5
61										Percent Non-Detects		31.25%
62												
63				**Raw Statistics**						**Log-transformed Statistics**		
64					Minimum Detected	0.013				Minimum Detected		-4.343
65					Maximum Detected	0.041				Maximum Detected		-3.194
66					Mean of Detected	0.0228				Mean of Detected		-3.856
67					SD of Detected	0.00944				SD of Detected		0.406
68					Minimum Non-Detect	0.01				Minimum Non-Detect		-4.605
69					Maximum Non-Detect	0.013				Maximum Non-Detect		-4.343
70												
71				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		5
72				For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected		11
73				those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		31.25%
74												
75						**UCL Statistics**						
76				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
77					Shapiro Wilk Test Statistic	0.898				Shapiro Wilk Test Statistic		0.92
78					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
79				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
80												
81				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
82					DL/2 Substitution Method					DL/2 Substitution Method		
83					Mean	0.0175				Mean		-4.267
84					SD	0.0113				SD		0.713
85					95% DL/2 (t) UCL	0.0224				95% H-Stat (DL/2) UCL		0.0201
86												
87					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
88					Mean	0.0173				Mean in Log Scale		-4.166
89					SD	0.0116				SD in Log Scale		0.582
90					95% MLE (t) UCL	0.0224				Mean in Original Scale		0.0181
91					95% MLE (Tiku) UCL	0.0227				SD in Original Scale		0.0105
92										95% Percentile Bootstrap UCL		0.0227
93										95% BCA Bootstrap UCL		0.023
94												
95				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
96					k star (bias corrected)	4.996				**Data appear Normal at 5% Significance Level**		
97					Theta Star	0.00457						
98					nu star	109.9						
99												
100					A-D Test Statistic	0.392				**Nonparametric Statistics**		
101					5% A-D Critical Value	0.731				Kaplan-Meier (KM) Method		
102					K-S Test Statistic	0.731				Mean		0.0198
103					5% K-S Critical Value	0.256				SD		0.00874
104				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.00229
105										95% KM (t) UCL		0.0238
106				**Assuming Gamma Distribution**						95% KM (z) UCL		0.0235

	A	B	C	D	E	F	G	H	I	J	K	L
107				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		0.0237
108					Minimum	0.00173				95% KM (bootstrap t) UCL		0.0245
109					Maximum	0.041				95% KM (BCA) UCL		0.0241
110					Mean	0.0178				95% KM (percentile) UCL		0.0238
111					Median	0.0145				95% KM (Chebyshev) UCL		0.0297
112					SD	0.011				97.5% KM (Chebyshev) UCL		0.0341
113					k star	1.886				99% KM (Chebyshev) UCL		0.0426
114					Theta star	0.00944						
115					Nu star	60.35			**Potential UCLs to Use**			
116					AppChi2	43.48				95% KM (t) UCL		0.0238
117					95% Gamma Approximate UCL	0.0247				95% KM (Percentile Bootstrap) UCL		0.0238
118					95% Adjusted Gamma UCL	0.0257						
119												
120												
121	**Chromium**											
122												
123					**General Statistics**							
124					Number of Valid Samples	16				Number of Unique Samples		13
125												
126				**Raw Statistics**						**Log-transformed Statistics**		
127					Minimum	0.8				Minimum of Log Data		-0.223
128					Maximum	5.4				Maximum of Log Data		1.686
129					Mean	1.878				Mean of log Data		0.511
130					Median	1.6				SD of log Data		0.481
131					SD	1.099						
132					Coefficient of Variation	0.585						
133					Skewness	2.349						
134												
135					**Relevant UCL Statistics**							
136				**Normal Distribution Test**						**Lognormal Distribution Test**		
137					Shapiro Wilk Test Statistic	0.767				Shapiro Wilk Test Statistic		0.957
138					Shapiro Wilk Critical Value	0.887				Shapiro Wilk Critical Value		0.887
139				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
140												
141				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
142					95% Student's-t UCL	2.359				95% H-UCL		2.409
143				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		2.857
144					95% Adjusted-CLT UCL	2.502				97.5% Chebyshev (MVUE) UCL		3.29
145					95% Modified-t UCL	2.386				99% Chebyshev (MVUE) UCL		4.141
146												
147				**Gamma Distribution Test**						**Nonparametric Test**		
148					k star (bias corrected)	3.583				**Data appear Gamma Distributed at 5% Significance Level**		
149					Theta Star	0.524						
150					nu star	114.6						
151					Approximate Chi Square Value (.05)	90.93				**Nonparametric Statistics**		
152					Adjusted Level of Significance	0.0335				95% CLT UCL		2.33
153					Adjusted Chi Square Value	88.53				95% Jackknife UCL		2.359
154										95% Standard Bootstrap UCL		2.311
155					Anderson-Darling Test Statistic	0.405				95% Bootstrap-t UCL		2.689
156					Anderson-Darling 5% Critical Value	0.742				95% Hall's Bootstrap UCL		4.441
157					Kolmogorov-Smirnov Test Statistic	0.127				95% Percentile Bootstrap UCL		2.34
158					Kolmogorov-Smirnov 5% Critical Value	0.216				95% BCA Bootstrap UCL		2.581
159				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		3.075

	A	B	C	D	E	F	G	H	I	J	K	L
160									97.5% Chebyshev(Mean, Sd) UCL			3.594
161			**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL			4.612
162					95% Approximate Gamma UCL	2.367						
163					95% Adjusted Gamma UCL	2.432						
164												
165			**Potential UCL to Use**						Use 95% Approximate Gamma UCL			2.367
166												
167												
168	**Cobalt**											
169												
170					**General Statistics**							
171					Number of Valid Samples	16			Number of Detected Data			5
172					Number of Unique Samples	5			Number of Non-Detect Data			11
173									Percent Non-Detects			68.75%
174												
175			**Raw Statistics**						**Log-transformed Statistics**			
176					Minimum Detected	0.0098			Minimum Detected			-4.625
177					Maximum Detected	0.025			Maximum Detected			-3.689
178					Mean of Detected	0.0172			Mean of Detected			-4.132
179					SD of Detected	0.00667			SD of Detected			0.417
180					Minimum Non-Detect	0.0097			Minimum Non-Detect			-4.636
181					Maximum Non-Detect	0.013			Maximum Non-Detect			-4.343
182												
183	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			13
184	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),								Number treated as Detected			3
185	those Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			81.25%
186												
187					**UCL Statistics**							
188			**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**			
189					Shapiro Wilk Test Statistic	0.916			Shapiro Wilk Test Statistic			0.897
190					5% Shapiro Wilk Critical Value	0.762			5% Shapiro Wilk Critical Value			0.762
191			**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
192												
193			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
194					DL/2 Substitution Method				DL/2 Substitution Method			
195					Mean	0.0092			Mean			-4.861
196					SD	0.00654			SD			0.557
197					95% DL/2 (t) UCL	0.0121			95% H-Stat (DL/2) UCL			0.0106
198												
199					Maximum Likelihood Estimate(MLE) Method				Robust ROS Method			
200					Mean	0.00142			Mean in Log Scale			-4.756
201					SD	0.0136			SD in Log Scale			0.544
202					95% MLE (t) UCL	0.00736			Mean in Original Scale			0.01
203					95% MLE (Tiku) UCL	0.0163			SD in Original Scale			0.00628
204									95% Percentile Bootstrap UCL			0.0126
205									95% BCA Bootstrap UCL			0.0131
206												
207			**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**			
208					k star (bias corrected)	3.207			**Data appear Normal at 5% Significance Level**			
209					Theta Star	0.00535						
210					nu star	32.07						
211												
212					A-D Test Statistic	0.363			**Nonparametric Statistics**			

	A	B	C	D	E	F	G	H	I	J	K	L
213					5% A-D Critical Value	0.68					Kaplan-Meier (KM) Method	
214					K-S Test Statistic	0.68					Mean	0.0121
215					5% K-S Critical Value	0.358					SD	0.00476
216			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.00133
217											95% KM (t) UCL	0.0145
218			**Assuming Gamma Distribution**								95% KM (z) UCL	0.0143
219				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.0141
220					Minimum	N/A					95% KM (bootstrap t) UCL	0.0143
221					Maximum	N/A					95% KM (BCA) UCL	0.0224
222					Mean	N/A					95% KM (percentile) UCL	0.0192
223					Median	N/A					95% KM (Chebyshev) UCL	0.0179
224					SD	N/A					97.5% KM (Chebyshev) UCL	0.0204
225					k star	N/A					99% KM (Chebyshev) UCL	0.0254
226					Theta star	N/A						
227					Nu star	N/A			**Potential UCLs to Use**			
228					AppChi2	N/A					95% KM (t) UCL	0.0145
229					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.0192
230					95% Adjusted Gamma UCL	N/A						
231												
232												
233	**Iron**											
234												
235					**General Statistics**							
236					Number of Valid Samples	16					Number of Unique Samples	11
237												
238			**Raw Statistics**						**Log-transformed Statistics**			
239					Minimum	8					Minimum of Log Data	2.079
240					Maximum	30					Maximum of Log Data	3.401
241					Mean	17.44					Mean of log Data	2.816
242					Median	17					SD of log Data	0.306
243					SD	5.278						
244					Coefficient of Variation	0.303						
245					Skewness	0.828						
246												
247					**Relevant UCL Statistics**							
248			**Normal Distribution Test**						**Lognormal Distribution Test**			
249					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Test Statistic	0.955
250					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
251			**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
252												
253			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
254					95% Student's-t UCL	19.75					95% H-UCL	20.31
255			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	23.34
256					95% Adjusted-CLT UCL	19.9					97.5% Chebyshev (MVUE) UCL	25.89
257					95% Modified-t UCL	19.8					99% Chebyshev (MVUE) UCL	30.9
258												
259			**Gamma Distribution Test**						**Nonparametric Test**			
260					k star (bias corrected)	9.685			**Data appear Normal at 5% Significance Level**			
261					Theta Star	1.8						
262					nu star	309.9						
263					Approximate Chi Square Value (.05)	270.1			**Nonparametric Statistics**			
264					Adjusted Level of Significance	0.0335					95% CLT UCL	19.61
265					Adjusted Chi Square Value	265.9					95% Jackknife UCL	19.75

	A	B	C	D	E	F	G	H	I	J	K	L
266											95% Standard Bootstrap UCL	19.54
267					Anderson-Darling Test Statistic	0.337					95% Bootstrap-t UCL	20.16
268					Anderson-Darling 5% Critical Value	0.739					95% Hall's Bootstrap UCL	20.77
269					Kolmogorov-Smirnov Test Statistic	0.158					95% Percentile Bootstrap UCL	19.56
270					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	19.63
271				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	23.19
272											97.5% Chebyshev(Mean, Sd) UCL	25.68
273				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	30.57
274					95% Approximate Gamma UCL	20.01						
275					95% Adjusted Gamma UCL	20.32						
276												
277				**Potential UCL to Use**							Use 95% Student's-t UCL	19.75
278												
279												
280	**Lead**											
281												
282					**General Statistics**							
283					Number of Valid Samples	16					Number of Detected Data	2
284					Number of Unique Samples	2					Number of Non-Detect Data	14
285											Percent Non-Detects	87.50%
286												
287				**Raw Statistics**						**Log-transformed Statistics**		
288					Minimum Detected	0.024					Minimum Detected	-3.73
289					Maximum Detected	0.029					Maximum Detected	-3.54
290					Mean of Detected	0.0265					Mean of Detected	-3.635
291					SD of Detected	0.00354					SD of Detected	0.134
292					Minimum Non-Detect	0.018					Minimum Non-Detect	-4.017
293					Maximum Non-Detect	0.025					Maximum Non-Detect	-3.689
294												
295	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	15
296	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
297	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
298												
299					**UCL Statistics**							
300				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
301					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
302					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
303				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
304												
305				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
306					DL/2 Substitution Method						DL/2 Substitution Method	
307					Mean	0.0129					Mean	-4.405
308					SD	0.00547					SD	0.318
309					95% DL/2 (t) UCL	0.0153					95% H-Stat (DL/2) UCL	0.0145
310												
311					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
312											Mean in Log Scale	-4.122
313											SD in Log Scale	0.229
314											Mean in Original Scale	0.0166
315											SD in Original Scale	0.00438
316											95% Percentile Bootstrap UCL	0.0185
317											95% BCA Bootstrap UCL	0.019
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
320					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
321					Theta Star	N/A						
322					nu star	N/A						
323												
324					A-D Test Statistic	0.359	**Nonparametric Statistics**					
325					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
326					K-S Test Statistic	N/A					Mean	0.0243
327					5% K-S Critical Value	N/A					SD	0.00121
328	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0004279
329											95% KM (t) UCL	0.0251
330			**Assuming Gamma Distribution**								95% KM (z) UCL	0.025
331				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.0277
332					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
333					Maximum	N/A					95% KM (BCA) UCL	1E+31
334					Mean	N/A					95% KM (percentile) UCL	1E+31
335					Median	N/A					95% KM (Chebyshev) UCL	0.0262
336					SD	N/A					97.5% KM (Chebyshev) UCL	0.027
337					k star	N/A					99% KM (Chebyshev) UCL	0.0286
338					Theta star	N/A						
339					Nu star	N/A	**Potential UCLs to Use**					
340					AppChi2	N/A					95% KM (t) UCL	0.0251
341					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	1E+31
342					95% Adjusted Gamma UCL	N/A						
343	**Warning: Recommended UCL exceeds the maximum observation**											
344												
345												
346	**Mercury**											
347												
348					**General Statistics**							
349					Number of Valid Samples	16					Number of Unique Samples	14
350												
351			**Raw Statistics**				**Log-transformed Statistics**					
352					Minimum	0.028					Minimum of Log Data	-3.576
353					Maximum	0.22					Maximum of Log Data	-1.514
354					Mean	0.105					Mean of log Data	-2.457
355					Median	0.087					SD of log Data	0.678
356					SD	0.0642						
357					Coefficient of Variation	0.614						
358					Skewness	0.538						
359												
360					**Relevant UCL Statistics**							
361			**Normal Distribution Test**				**Lognormal Distribution Test**					
362					Shapiro Wilk Test Statistic	0.903					Shapiro Wilk Test Statistic	0.938
363					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
364			**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
365												
366			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
367					95% Student's-t UCL	0.133					95% H-UCL	0.16
368			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	0.188
369					95% Adjusted-CLT UCL	0.133					97.5% Chebyshev (MVUE) UCL	0.224
370					95% Modified-t UCL	0.133					99% Chebyshev (MVUE) UCL	0.294
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	**Gamma Distribution Test**						**Nonparametric Test**					
373					k star (bias corrected)	2.209	**Data appear Normal at 5% Significance Level**					
374					Theta Star	0.0473						
375					nu star	70.69						
376					Approximate Chi Square Value (.05)	52.33	**Nonparametric Statistics**					
377					Adjusted Level of Significance	0.0335					95% CLT UCL	0.131
378					Adjusted Chi Square Value	50.54					95% Jackknife UCL	0.133
379											95% Standard Bootstrap UCL	0.13
380					Anderson-Darling Test Statistic	0.378					95% Bootstrap-t UCL	0.134
381					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	0.13
382					Kolmogorov-Smirnov Test Statistic	0.14					95% Percentile Bootstrap UCL	0.132
383					Kolmogorov-Smirnov 5% Critical Value	0.217					95% BCA Bootstrap UCL	0.134
384	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.174
385											97.5% Chebyshev(Mean, Sd) UCL	0.205
386			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	0.264
387					95% Approximate Gamma UCL	0.141						
388					95% Adjusted Gamma UCL	0.146						
389												
390			**Potential UCL to Use**								Use 95% Student's-t UCL	0.133
391												
392												
393	**Nickel**											
394												
395					**General Statistics**							
396					Number of Valid Samples	16					Number of Unique Samples	14
397												
398			**Raw Statistics**				**Log-transformed Statistics**					
399					Minimum	0.31					Minimum of Log Data	-1.171
400					Maximum	2.8					Maximum of Log Data	1.03
401					Mean	0.893					Mean of log Data	-0.268
402					Median	0.725					SD of log Data	0.548
403					SD	0.6						
404					Coefficient of Variation	0.671						
405					Skewness	2.347						
406												
407					**Relevant UCL Statistics**							
408			**Normal Distribution Test**				**Lognormal Distribution Test**					
409					Shapiro Wilk Test Statistic	0.762					Shapiro Wilk Test Statistic	0.969
410					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
411			**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
412												
413			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
414					95% Student's-t UCL	1.156					95% H-UCL	1.198
415			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	1.425
416					95% Adjusted-CLT UCL	1.234					97.5% Chebyshev (MVUE) UCL	1.661
417					95% Modified-t UCL	1.171					99% Chebyshev (MVUE) UCL	2.124
418												
419			**Gamma Distribution Test**				**Nonparametric Test**					
420					k star (bias corrected)	2.798	**Data appear Gamma Distributed at 5% Significance Level**					
421					Theta Star	0.319						
422					nu star	89.55						
423					Approximate Chi Square Value (.05)	68.73	**Nonparametric Statistics**					
424					Adjusted Level of Significance	0.0335					95% CLT UCL	1.14

	A	B	C	D	E	F	G	H	I	J	K	L
425					Adjusted Chi Square Value	66.66					95% Jackknife UCL	1.156
426											95% Standard Bootstrap UCL	1.13
427					Anderson-Darling Test Statistic	0.423					95% Bootstrap-t UCL	1.37
428					Anderson-Darling 5% Critical Value	0.743					95% Hall's Bootstrap UCL	2.313
429					Kolmogorov-Smirnov Test Statistic	0.185					95% Percentile Bootstrap UCL	1.157
430					Kolmogorov-Smirnov 5% Critical Value	0.216					95% BCA Bootstrap UCL	1.251
431					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1.547
432											97.5% Chebyshev(Mean, Sd) UCL	1.829
433					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	2.385
434					95% Approximate Gamma UCL	1.164						
435					95% Adjusted Gamma UCL	1.2						
436												
437					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	1.164
438												
439												
440	**Selenium**											
441												
442					**General Statistics**							
443					Number of Valid Samples	16					Number of Unique Samples	11
444												
445					**Raw Statistics**						**Log-transformed Statistics**	
446					Minimum	0.42					Minimum of Log Data	-0.868
447					Maximum	1.1					Maximum of Log Data	0.0953
448					Mean	0.582					Mean of log Data	-0.568
449					Median	0.56					SD of log Data	0.225
450					SD	0.157						
451					Coefficient of Variation	0.27						
452					Skewness	2.542						
453												
454					**Relevant UCL Statistics**							
455					**Normal Distribution Test**						**Lognormal Distribution Test**	
456					Shapiro Wilk Test Statistic	0.734					Shapiro Wilk Test Statistic	0.862
457					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
458					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
459												
460					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
461					95% Student's-t UCL	0.651					95% H-UCL	0.646
462					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	0.724
463					95% Adjusted-CLT UCL	0.673					97.5% Chebyshev (MVUE) UCL	0.786
464					95% Modified-t UCL	0.655					99% Chebyshev (MVUE) UCL	0.907
465												
466					**Gamma Distribution Test**						**Nonparametric Test**	
467					k star (bias corrected)	15.49					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
468					Theta Star	0.0376						
469					nu star	495.7						
470					Approximate Chi Square Value (.05)	445.1					**Nonparametric Statistics**	
471					Adjusted Level of Significance	0.0335					95% CLT UCL	0.646
472					Adjusted Chi Square Value	439.6					95% Jackknife UCL	0.651
473											95% Standard Bootstrap UCL	0.644
474					Anderson-Darling Test Statistic	0.808					95% Bootstrap-t UCL	0.701
475					Anderson-Darling 5% Critical Value	0.737					95% Hall's Bootstrap UCL	0.946
476					Kolmogorov-Smirnov Test Statistic	0.184					95% Percentile Bootstrap UCL	0.649
477					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	0.681

	A	B	C	D	E	F	G	H	I	J	K	L
478	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.753
479											97.5% Chebyshev(Mean, Sd) UCL	0.827
480				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	0.973
481					95% Approximate Gamma UCL	0.648						
482					95% Adjusted Gamma UCL	0.656						
483												
484				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	0.648
485												
486												
487	**Vanadium**											
488												
489						**General Statistics**						
490					Number of Valid Samples	16					Number of Detected Data	9
491					Number of Unique Samples	8					Number of Non-Detect Data	7
492											Percent Non-Detects	43.75%
493												
494				**Raw Statistics**							**Log-transformed Statistics**	
495					Minimum Detected	0.052					Minimum Detected	-2.957
496					Maximum Detected	0.076					Maximum Detected	-2.577
497					Mean of Detected	0.0653					Mean of Detected	-2.737
498					SD of Detected	0.0089					SD of Detected	0.14
499					Minimum Non-Detect	0.052					Minimum Non-Detect	-2.957
500					Maximum Non-Detect	0.062					Maximum Non-Detect	-2.781
501												
502	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	11
503	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	5
504	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	68.75%
505												
506						**UCL Statistics**						
507				**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**	
508					Shapiro Wilk Test Statistic	0.902					Shapiro Wilk Test Statistic	0.896
509					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
510				**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**	
511												
512				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
513					DL/2 Substitution Method						DL/2 Substitution Method	
514					Mean	0.0491					Mean	-3.1
515					SD	0.0201					SD	0.44
516					95% DL/2 (t) UCL	0.0579					95% H-Stat (DL/2) UCL	0.0568
517												
518					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
519					Mean	0.0724					Mean in Log Scale	-2.856
520					SD	0.00233					SD in Log Scale	0.177
521					95% MLE (t) UCL	0.0734					Mean in Original Scale	0.0584
522					95% MLE (Tiku) UCL	0.0742					SD in Original Scale	0.0106
523											95% Percentile Bootstrap UCL	0.0626
524											95% BCA Bootstrap UCL	0.0627
525												
526				**Gamma Distribution Test with Detected Values Only**							**Nonparametic Test with Detected Values Only**	
527					k star (bias corrected)	39.06					**Data appear Normal at 5% Significance Level**	
528					Theta Star	0.00167						
529					nu star	703.1						
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531					A-D Test Statistic	0.499	**Nonparametric Statistics**					
532					5% A-D Critical Value	0.72					Kaplan-Meier (KM) Method	
533					K-S Test Statistic	0.72					Mean	0.0598
534					5% K-S Critical Value	0.279					SD	0.00898
535	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0024
536											95% KM (t) UCL	0.064
537			**Assuming Gamma Distribution**								95% KM (z) UCL	0.0637
538				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.0636
539					Minimum	0.0578					95% KM (bootstrap t) UCL	0.0643
540					Maximum	0.076					95% KM (BCA) UCL	0.0661
541					Mean	0.0669					95% KM (percentile) UCL	0.0651
542					Median	0.0668					95% KM (Chebyshev) UCL	0.0703
543					SD	0.00493					97.5% KM (Chebyshev) UCL	0.0748
544					k star	159.3					99% KM (Chebyshev) UCL	0.0837
545					Theta star	0.0004196						
546					Nu star	5099	**Potential UCLs to Use**					
547					AppChi2	4934					95% KM (t) UCL	0.064
548					95% Gamma Approximate UCL	0.0691					95% KM (Percentile Bootstrap) UCL	0.0651
549					95% Adjusted Gamma UCL	0.0694						
550												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	U:\JCV\Puritan\2006\ucl data\fish\BR1_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	bis(2-Ethylhexyl)phthalate											
10												
11						General Statistics						
12						Number of Valid Samples	16			Number of Detected Data		15
13						Number of Unique Samples	10			Number of Non-Detect Data		1
14										Percent Non-Detects		6.25%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	84			Minimum Detected		4.431
18						Maximum Detected	230			Maximum Detected		5.438
19						Mean of Detected	132.5			Mean of Detected		4.848
20						SD of Detected	40.3			SD of Detected		0.28
21						Minimum Non-Detect	160			Minimum Non-Detect		5.075
22						Maximum Non-Detect	160			Maximum Non-Detect		5.075
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.883			Shapiro Wilk Test Statistic		0.949
28						5% Shapiro Wilk Critical Value	0.881			5% Shapiro Wilk Critical Value		0.881
29				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	129.3			Mean		4.819
34						SD	41.09			SD		0.295
35						95% DL/2 (t) UCL	147.3			95% H-Stat (DL/2) UCL		153.2
36												
37						Maximum Likelihood Estimate(MLE) Method				Robust ROS Method		
38						Mean	204			Mean in Log Scale		4.843
39						SD	24.49			SD in Log Scale		0.271
40						95% MLE (t) UCL	214.8			Mean in Original Scale		131.6
41						95% MLE (Tiku) UCL	228.4			SD in Original Scale		39.11
42										95% Percentile Bootstrap UCL		147.1
43										95% BCA Bootstrap UCL		150.7
44												

	A	B	C	D	E	F	G	H	I	J	K	L
45	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
46					k star (bias corrected)	10.59	Data appear Normal at 5% Significance Level					
47					Theta Star	12.51						
48					nu star	317.8						
49												
50					A-D Test Statistic	0.452	Nonparametric Statistics					
51					5% A-D Critical Value	0.737				Kaplan-Meier (KM) Method		
52					K-S Test Statistic	0.737				Mean		131.5
53					5% K-S Critical Value	0.221				SD		38.18
54	Data appear Gamma Distributed at 5% Significance Level									SE of Mean		9.955
55										95% KM (t) UCL		148.9
56	Assuming Gamma Distribution									95% KM (z) UCL		147.9
57				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		148.9
58					Minimum	N/A				95% KM (bootstrap t) UCL		156.8
59					Maximum	N/A				95% KM (BCA) UCL		148.8
60					Mean	N/A				95% KM (percentile) UCL		148.2
61					Median	N/A				95% KM (Chebyshev) UCL		174.9
62					SD	N/A				97.5% KM (Chebyshev) UCL		193.6
63					k star	N/A				99% KM (Chebyshev) UCL		230.5
64					Theta star	N/A						
65					Nu star	N/A	Potential UCLs to Use					
66					AppChi2	N/A				95% KM (t) UCL		148.9
67					95% Gamma Approximate UCL	N/A				95% KM (Percentile Bootstrap) UCL		148.2
68					95% Adjusted Gamma UCL	N/A						
69												
70												
71	Benzo(a)pyrene											
72												
73					General Statistics							
74					Number of Valid Samples	16				Number of Detected Data		1
75					Number of Unique Samples	1				Number of Non-Detect Data		15
76										Percent Non-Detects		93.75%
77												
78				Raw Statistics						Log-transformed Statistics		
79					Minimum Detected	8.6				Minimum Detected		2.152
80					Maximum Detected	8.6				Maximum Detected		2.152
81					Mean of Detected	8.6				Mean of Detected		2.152
82					SD of Detected	N/A				SD of Detected		N/A
83					Minimum Non-Detect	7.6				Minimum Non-Detect		2.028
84					Maximum Non-Detect	8				Maximum Non-Detect		2.079
85												
86	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
87	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
88	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
89												

	A	B	C	D	E	F	G	H	I	J	K	L
90	**UCL Statistics**											
91	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
92					Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic		N/A
93					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
94	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
95												
96	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
97					DL/2 Substitution Method					DL/2 Substitution Method		
98					Mean	4.194				Mean		1.41
99					SD	1.177				SD		0.198
100					95% DL/2 (t) UCL	4.709				95% H-Stat (DL/2) UCL		4.487
101												
102					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
103										Mean in Log Scale		N/A
104										SD in Log Scale		N/A
105										Mean in Original Scale		N/A
106										SD in Original Scale		N/A
107										95% Percentile Bootstrap UCL		N/A
108										95% BCA Bootstrap UCL		N/A
109												
110	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
111	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
112												
113												
114	**Potential UCLs to Use**						**Nonparametric Statistics**					
115					99% KM (Chebyshev) UCL	8.6				Kaplan-Meier (KM) Method		
116										Mean		8.6
117										SD		0
118										SE of Mean		0
119										95% KM (t) UCL		8.6
120										95% KM (z) UCL		8.6
121										95% KM (jackknife) UCL		7060
122										95% KM (bootstrap t) UCL		N/A
123										95% KM (BCA) UCL		1E+31
124										95% KM (percentile) UCL		1E+31
125										95% KM (Chebyshev) UCL		8.6
126										97.5% KM (Chebyshev) UCL		8.6
127										99% KM (Chebyshev) UCL		8.6
128												
129												

	A	B	C	D	E	F	G	H	I	J	K	L
130	Dibenz[a,h]anthracene											
131												
132					General Statistics							
133					Number of Valid Samples	16				Number of Detected Data		1
134					Number of Unique Samples	1				Number of Non-Detect Data		15
135										Percent Non-Detects		93.75%
136												
137			Raw Statistics							Log-transformed Statistics		
138					Minimum Detected	9.8				Minimum Detected		2.282
139					Maximum Detected	9.8				Maximum Detected		2.282
140					Mean of Detected	9.8				Mean of Detected		2.282
141					SD of Detected	N/A				SD of Detected		N/A
142					Minimum Non-Detect	7.6				Minimum Non-Detect		2.028
143					Maximum Non-Detect	8				Maximum Non-Detect		2.079
144												
145	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
146	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
147	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
148												
149					UCL Statistics							
150			Normal Distribution Test with Detected Values Only							Lognormal Distribution Test with Detected Values Only		
151					Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic		N/A
152					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
153			Data not Normal at 5% Significance Level							Data not Lognormal at 5% Significance Level		
154												
155			Assuming Normal Distribution							Assuming Lognormal Distribution		
156					DL/2 Substitution Method					DL/2 Substitution Method		
157					Mean	4.269				Mean		1.418
158					SD	1.476				SD		0.231
159					95% DL/2 (t) UCL	4.916				95% H-Stat (DL/2) UCL		4.54
160												
161					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
162										Mean in Log Scale		N/A
163										SD in Log Scale		N/A
164										Mean in Original Scale		N/A
165										SD in Original Scale		N/A
166										95% Percentile Bootstrap UCL		N/A
167										95% BCA Bootstrap UCL		N/A
168												
169			Gamma Distribution Test with Detected Values Only							Nonparametic Test with Detected Values Only		
170			Gamma Statistics Not Available							Data do not follow a Discernable Distribution (0.05)		
171												
172												
173			Potential UCLs to Use							Nonparametric Statistics		
174					99% KM (Chebyshev) UCL	9.8				Kaplan-Meier (KM) Method		
175										Mean		9.8
176										SD		0
177										SE of Mean		0
178										95% KM (t) UCL		9.8
179										95% KM (z) UCL		9.8
180										95% KM (jackknife) UCL		7060
181										95% KM (bootstrap t) UCL		N/A

	A	B	C	D	E	F	G	H	I	J	K	L
182											95% KM (BCA) UCL	1E+31
183											95% KM (percentile) UCL	1E+31
184											95% KM (Chebyshev) UCL	9.8
185											97.5% KM (Chebyshev) UCL	9.8
186											99% KM (Chebyshev) UCL	9.8
187												
188												
189	Indeno(1,2,3-cd)pyrene											
190												
191					General Statistics							
192					Number of Valid Samples	16				Number of Detected Data		1
193					Number of Unique Samples	1				Number of Non-Detect Data		15
194										Percent Non-Detects		93.75%
195												
196				Raw Statistics						Log-transformed Statistics		
197					Minimum Detected	8.6				Minimum Detected		2.152
198					Maximum Detected	8.6				Maximum Detected		2.152
199					Mean of Detected	8.6				Mean of Detected		2.152
200					SD of Detected	N/A				SD of Detected		N/A
201					Minimum Non-Detect	7.6				Minimum Non-Detect		2.028
202					Maximum Non-Detect	8				Maximum Non-Detect		2.079
203												
204	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		15
205	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
206	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
207												
208					UCL Statistics							
209				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
210					Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic		N/A
211					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A
212				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
213												
214				Assuming Normal Distribution						Assuming Lognormal Distribution		
215					DL/2 Substitution Method					DL/2 Substitution Method		
216					Mean	4.194				Mean		1.41
217					SD	1.177				SD		0.198
218					95% DL/2 (t) UCL	4.709				95% H-Stat (DL/2) UCL		4.487
219												
220					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
221										Mean in Log Scale		N/A
222										SD in Log Scale		N/A
223										Mean in Original Scale		N/A
224										SD in Original Scale		N/A
225										95% Percentile Bootstrap UCL		N/A
226										95% BCA Bootstrap UCL		N/A
227												
228				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
229				Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)		
230												
231												
232				Potential UCLs to Use						Nonparametric Statistics		
233					99% KM (Chebyshev) UCL	8.6				Kaplan-Meier (KM) Method		

	A	B	C	D	E	F	G	H	I	J	K	L
234											Mean	8.6
235											SD	0
236											SE of Mean	0
237											95% KM (t) UCL	8.6
238											95% KM (z) UCL	8.6
239											95% KM (jackknife) UCL	7060
240											95% KM (bootstrap t) UCL	N/A
241											95% KM (BCA) UCL	1E+31
242											95% KM (percentile) UCL	1E+31
243											95% KM (Chebyshev) UCL	8.6
244											97.5% KM (Chebyshev) UCL	8.6
245											99% KM (Chebyshev) UCL	8.6
246												
247												
248	**Total Homologs**											
249												
250						**General Statistics**						
251					Number of Valid Samples	16					Number of Unique Samples	14
252												
253					**Raw Statistics**						**Log-transformed Statistics**	
254					Minimum	70					Minimum of Log Data	4.248
255					Maximum	1300					Maximum of Log Data	7.17
256					Mean	291.9					Mean of log Data	5.322
257					Median	195					SD of log Data	0.796
258					SD	322.3						
259					Coefficient of Variation	1.104						
260					Skewness	2.56						
261												
262						**Relevant UCL Statistics**						
263					**Normal Distribution Test**						**Lognormal Distribution Test**	
264					Shapiro Wilk Test Statistic	0.64					Shapiro Wilk Test Statistic	0.927
265					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
266					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
267												
268					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
269					95% Student's-t UCL	433.1					95% H-UCL	461.9
270					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	529
271					95% Adjusted-CLT UCL	479.5					97.5% Chebyshev (MVUE) UCL	639.2
272					95% Modified-t UCL	441.7					99% Chebyshev (MVUE) UCL	855.7
273												
274					**Gamma Distribution Test**						**Nonparametric Test**	
275					k star (bias corrected)	1.307					**Data appear Lognormal at 5% Significance Level**	
276					Theta Star	223.3						
277					nu star	41.82						
278					Approximate Chi Square Value (.05)	28					**Nonparametric Statistics**	
279					Adjusted Level of Significance	0.0335					95% CLT UCL	424.4
280					Adjusted Chi Square Value	26.72					95% Jackknife UCL	433.1
281											95% Standard Bootstrap UCL	423.7
282					Anderson-Darling Test Statistic	0.924					95% Bootstrap-t UCL	744.2
283					Anderson-Darling 5% Critical Value	0.754					95% Hall's Bootstrap UCL	1143
284					Kolmogorov-Smirnov Test Statistic	0.225					95% Percentile Bootstrap UCL	433.8
285					Kolmogorov-Smirnov 5% Critical Value	0.219					95% BCA Bootstrap UCL	495.6

	A	B	C	D	E	F	G	H	I	J	K	L
286	Data not Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	643.1
287											97.5% Chebyshev(Mean, Sd) UCL	795
288	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	1094
289					95% Approximate Gamma UCL	436						
290					95% Adjusted Gamma UCL	456.9						
291												
292	Potential UCL to Use										Use 95% H-UCL	461.9
293												
294												
295	4,4'-DDD											
296												
297	General Statistics											
298					Number of Valid Samples	16					Number of Unique Samples	15
299												
300	Raw Statistics						Log-transformed Statistics					
301					Minimum	1.6					Minimum of Log Data	0.47
302					Maximum	13					Maximum of Log Data	2.565
303					Mean	4.2					Mean of log Data	1.241
304					Median	3.1					SD of log Data	0.607
305					SD	3.118						
306					Coefficient of Variation	0.742						
307					Skewness	1.88						
308												
309	Relevant UCL Statistics											
310	Normal Distribution Test						Lognormal Distribution Test					
311					Shapiro Wilk Test Statistic	0.768					Shapiro Wilk Test Statistic	0.924
312					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
313	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
314												
315	Assuming Normal Distribution						Assuming Lognormal Distribution					
316					95% Student's-t UCL	5.567					95% H-UCL	5.841
317	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	6.935
318					95% Adjusted-CLT UCL	5.874					97.5% Chebyshev (MVUE) UCL	8.16
319					95% Modified-t UCL	5.628					99% Chebyshev (MVUE) UCL	10.57
320												
321	Gamma Distribution Test						Nonparametric Test					
322					k star (bias corrected)	2.259	Data appear Gamma Distributed at 5% Significance Level					
323					Theta Star	1.859						
324					nu star	72.29						
325					Approximate Chi Square Value (.05)	53.71	Nonparametric Statistics					
326					Adjusted Level of Significance	0.0335					95% CLT UCL	5.482
327					Adjusted Chi Square Value	51.89					95% Jackknife UCL	5.567
328											95% Standard Bootstrap UCL	5.473
329					Anderson-Darling Test Statistic	0.739					95% Bootstrap-t UCL	6.434
330					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	6.875
331					Kolmogorov-Smirnov Test Statistic	0.187					95% Percentile Bootstrap UCL	5.55
332					Kolmogorov-Smirnov 5% Critical Value	0.217					95% BCA Bootstrap UCL	5.8
333	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	7.598
334											97.5% Chebyshev(Mean, Sd) UCL	9.068
335	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	11.96
336					95% Approximate Gamma UCL	5.653						
337					95% Adjusted Gamma UCL	5.851						

	A	B	C	D	E	F	G	H	I	J	K	L
338												
339	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					5.653
340												
341												
342	**4,4'-DDE**											
343												
344	**General Statistics**											
345	Number of Valid Samples					16	Number of Unique Samples					15
346												
347	**Raw Statistics**						**Log-transformed Statistics**					
348	Minimum					2.8	Minimum of Log Data					1.03
349	Maximum					56	Maximum of Log Data					4.025
350	Mean					12.23	Mean of log Data					2.135
351	Median					7.75	SD of log Data					0.806
352	SD					13.87						
353	Coefficient of Variation					1.134						
354	Skewness					2.587						
355												
356	**Relevant UCL Statistics**											
357	**Normal Distribution Test**						**Lognormal Distribution Test**					
358	Shapiro Wilk Test Statistic					0.638	Shapiro Wilk Test Statistic					0.926
359	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
360	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
361												
362	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
363	95% Student's-t UCL					18.3	95% H-UCL					19.4
364	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					22.15
365	95% Adjusted-CLT UCL					20.32	97.5% Chebyshev (MVUE) UCL					26.8
366	95% Modified-t UCL					18.68	99% Chebyshev (MVUE) UCL					35.93
367												
368	**Gamma Distribution Test**						**Nonparametric Test**					
369	k star (bias corrected)					1.261	**Data appear Lognormal at 5% Significance Level**					
370	Theta Star					9.698						
371	nu star					40.34						
372	Approximate Chi Square Value (.05)					26.79	**Nonparametric Statistics**					
373	Adjusted Level of Significance					0.0335	95% CLT UCL					17.93
374	Adjusted Chi Square Value					25.53	95% Jackknife UCL					18.3
375							95% Standard Bootstrap UCL					17.78
376	Anderson-Darling Test Statistic					0.971	95% Bootstrap-t UCL					31.02
377	Anderson-Darling 5% Critical Value					0.755	95% Hall's Bootstrap UCL					46.28
378	Kolmogorov-Smirnov Test Statistic					0.232	95% Percentile Bootstrap UCL					18.22
379	Kolmogorov-Smirnov 5% Critical Value					0.219	95% BCA Bootstrap UCL					20.83
380	**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					27.34
381							97.5% Chebyshev(Mean, Sd) UCL					33.88
382	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					46.72
383	95% Approximate Gamma UCL					18.41						
384	95% Adjusted Gamma UCL					19.31						
385												
386	**Potential UCL to Use**						Use 95% H-UCL					19.4
387												
388												
389	**4,4'-DDT**											

	A	B	C	D	E	F	G	H	I	J	K	L
390												
391						General Statistics						
392					Number of Valid Samples	16					Number of Detected Data	15
393					Number of Unique Samples	15					Number of Non-Detect Data	1
394											Percent Non-Detects	6.25%
395												
396				Raw Statistics						Log-transformed Statistics		
397					Minimum Detected	0.42					Minimum Detected	-0.868
398					Maximum Detected	15					Maximum Detected	2.708
399					Mean of Detected	2.889					Mean of Detected	0.447
400					SD of Detected	3.868					SD of Detected	1.098
401					Minimum Non-Detect	0.32					Minimum Non-Detect	-1.139
402					Maximum Non-Detect	0.32					Maximum Non-Detect	-1.139
403												
404												
405						UCL Statistics						
406				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
407					Shapiro Wilk Test Statistic	0.666					Shapiro Wilk Test Statistic	0.925
408					5% Shapiro Wilk Critical Value	0.881					5% Shapiro Wilk Critical Value	0.881
409				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
410												
411				Assuming Normal Distribution						Assuming Lognormal Distribution		
412					DL/2 Substitution Method						DL/2 Substitution Method	
413					Mean	2.718					Mean	0.304
414					SD	3.799					SD	1.205
415					95% DL/2 (t) UCL	4.383					95% H-Stat (DL/2) UCL	4.978
416												
417					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
418					Mean	2.58					Mean in Log Scale	0.279
419					SD	3.842					SD in Log Scale	1.255
420					95% MLE (t) UCL	4.263					Mean in Original Scale	2.715
421					95% MLE (Tiku) UCL	4.142					SD in Original Scale	3.801
422											95% Percentile Bootstrap UCL	4.379
423											95% BCA Bootstrap UCL	5.12
424												
425				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
426					k star (bias corrected)	0.802				Data appear Lognormal at 5% Significance Level		
427					Theta Star	3.604						
428					nu star	24.05						
429												
430					A-D Test Statistic	0.773				Nonparametric Statistics		
431					5% A-D Critical Value	0.766					Kaplan-Meier (KM) Method	
432					K-S Test Statistic	0.766					Mean	2.734
433					5% K-S Critical Value	0.228					SD	3.667
434				Data not Gamma Distributed at 5% Significance Level							SE of Mean	0.949
435											95% KM (t) UCL	4.398
436				Assuming Gamma Distribution							95% KM (z) UCL	4.295
437					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.394
438					Minimum	0					95% KM (bootstrap t) UCL	6.278
439					Maximum	15					95% KM (BCA) UCL	4.492
440					Mean	2.708					95% KM (percentile) UCL	4.435
441					Median	1.05					95% KM (Chebyshev) UCL	6.871

	A	B	C	D	E	F	G	H	I	J	K	L
442					SD	3.806					97.5% KM (Chebyshev) UCL	8.661
443					k star	0.332					99% KM (Chebyshev) UCL	12.18
444					Theta star	8.147						
445					Nu star	10.64					**Potential UCLs to Use**	
446					AppChi2	4.344					97.5% KM (Chebyshev) UCL	8.661
447					95% Gamma Approximate UCL	6.632						
448					95% Adjusted Gamma UCL	7.395						
449												
450												
451	**alpha-Chlordane**											
452												
453					**General Statistics**							
454					Number of Valid Samples	16					Number of Unique Samples	13
455												
456					**Raw Statistics**						**Log-transformed Statistics**	
457					Minimum	0.69					Minimum of Log Data	-0.371
458					Maximum	9.4					Maximum of Log Data	2.241
459					Mean	3.244					Mean of log Data	0.829
460					Median	2.45					SD of log Data	0.885
461					SD	2.674						
462					Coefficient of Variation	0.824						
463					Skewness	0.967						
464												
465					**Relevant UCL Statistics**							
466					**Normal Distribution Test**						**Lognormal Distribution Test**	
467					Shapiro Wilk Test Statistic	0.861					Shapiro Wilk Test Statistic	0.908
468					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
469					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
470												
471					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
472					95% Student's-t UCL	4.415					95% H-UCL	6.057
473					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	6.711
474					95% Adjusted-CLT UCL	4.516					97.5% Chebyshev (MVUE) UCL	8.194
475					95% Modified-t UCL	4.442					99% Chebyshev (MVUE) UCL	11.11
476												
477					**Gamma Distribution Test**						**Nonparametric Test**	
478					k star (bias corrected)	1.33					**Data appear Gamma Distributed at 5% Significance Level**	
479					Theta Star	2.439						
480					nu star	42.55						
481					Approximate Chi Square Value (.05)	28.6					**Nonparametric Statistics**	
482					Adjusted Level of Significance	0.0335					95% CLT UCL	4.343
483					Adjusted Chi Square Value	27.3					95% Jackknife UCL	4.415
484											95% Standard Bootstrap UCL	4.297
485					Anderson-Darling Test Statistic	0.648					95% Bootstrap-t UCL	4.658
486					Anderson-Darling 5% Critical Value	0.754					95% Hall's Bootstrap UCL	4.584
487					Kolmogorov-Smirnov Test Statistic	0.201					95% Percentile Bootstrap UCL	4.384
488					Kolmogorov-Smirnov 5% Critical Value	0.219					95% BCA Bootstrap UCL	4.465
489					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	6.157
490											97.5% Chebyshev(Mean, Sd) UCL	7.418
491					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	9.894
492					95% Approximate Gamma UCL	4.827						
493					95% Adjusted Gamma UCL	5.056						

	A	B	C	D	E	F	G	H	I	J	K	L
494												
495	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					4.827
496												
497												
498	**Dieldrin**											
499												
500	**General Statistics**											
501	Number of Valid Samples					16	Number of Unique Samples					14
502												
503	**Raw Statistics**						**Log-transformed Statistics**					
504	Minimum					3.9	Minimum of Log Data					1.361
505	Maximum					16	Maximum of Log Data					2.773
506	Mean					8.381	Mean of log Data					2.066
507	Median					7.9	SD of log Data					0.359
508	SD					3.065						
509	Coefficient of Variation					0.366						
510	Skewness					0.963						
511												
512	**Relevant UCL Statistics**											
513	**Normal Distribution Test**						**Lognormal Distribution Test**					
514	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.989
515	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
516	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
517												
518	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
519	95% Student's-t UCL					9.725	95% H-UCL					10.06
520	**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL					11.72
521	95% Adjusted-CLT UCL					9.839	97.5% Chebyshev (MVUE) UCL					13.16
522	95% Modified-t UCL					9.755	99% Chebyshev (MVUE) UCL					16
523												
524	**Gamma Distribution Test**						**Nonparametric Test**					
525	k star (bias corrected)					6.913	**Data appear Normal at 5% Significance Level**					
526	Theta Star					1.212						
527	nu star					221.2						
528	Approximate Chi Square Value (.05)					187.8	**Nonparametric Statistics**					
529	Adjusted Level of Significance					0.0335	95% CLT UCL					9.642
530	Adjusted Chi Square Value					184.3	95% Jackknife UCL					9.725
531							95% Standard Bootstrap UCL					9.608
532	Anderson-Darling Test Statistic					0.165	95% Bootstrap-t UCL					10.1
533	Anderson-Darling 5% Critical Value					0.74	95% Hall's Bootstrap UCL					10.37
534	Kolmogorov-Smirnov Test Statistic					0.0932	95% Percentile Bootstrap UCL					9.619
535	Kolmogorov-Smirnov 5% Critical Value					0.215	95% BCA Bootstrap UCL					9.781
536	**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL					11.72
537							97.5% Chebyshev(Mean, Sd) UCL					13.17
538	**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL					16.01
539	95% Approximate Gamma UCL					9.873						
540	95% Adjusted Gamma UCL					10.06						
541												
542	**Potential UCL to Use**						Use 95% Student's-t UCL					9.725
543												
544												
545	**Gamma-Chlordane**											

	A	B	C	D	E	F	G	H	I	J	K	L
546												
547						General Statistics						
548					Number of Valid Samples	16				Number of Detected Data		10
549					Number of Unique Samples	10				Number of Non-Detect Data		6
550										Percent Non-Detects		37.50%
551												
552				Raw Statistics						Log-transformed Statistics		
553					Minimum Detected	1.4				Minimum Detected		0.336
554					Maximum Detected	5.6				Maximum Detected		1.723
555					Mean of Detected	3.62				Mean of Detected		1.209
556					SD of Detected	1.329				SD of Detected		0.442
557					Minimum Non-Detect	0.32				Minimum Non-Detect		-1.139
558					Maximum Non-Detect	0.33				Maximum Non-Detect		-1.109
559												
560	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
561	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		10
562	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		37.50%
563												
564						UCL Statistics						
565				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
566					Shapiro Wilk Test Statistic	0.963				Shapiro Wilk Test Statistic		0.894
567					5% Shapiro Wilk Critical Value	0.842				5% Shapiro Wilk Critical Value		0.842
568				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
569												
570				Assuming Normal Distribution						Assuming Lognormal Distribution		
571					DL/2 Substitution Method					DL/2 Substitution Method		
572					Mean	2.324				Mean		0.0764
573					SD	2.012				SD		1.549
574					95% DL/2 (t) UCL	3.205				95% H-Stat (DL/2) UCL		3.445
575												
576					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
577					Mean	1.709				Mean in Log Scale		0.816
578					SD	2.806				SD in Log Scale		0.642
579					95% MLE (t) UCL	2.939				Mean in Original Scale		2.713
580					95% MLE (Tiku) UCL	3.094				SD in Original Scale		1.597
581										95% Percentile Bootstrap UCL		3.371
582										95% BCA Bootstrap UCL		3.373
583												
584				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
585					k star (bias corrected)	4.726				Data appear Normal at 5% Significance Level		
586					Theta Star	0.766						
587					nu star	94.52						
588												
589					A-D Test Statistic	0.395				Nonparametric Statistics		
590					5% A-D Critical Value	0.728				Kaplan-Meier (KM) Method		
591					K-S Test Statistic	0.728				Mean		2.788
592					5% K-S Critical Value	0.267				SD		1.466
593				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		0.386
594										95% KM (t) UCL		3.465
595				Assuming Gamma Distribution						95% KM (z) UCL		3.423
596					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		3.409
597					Minimum	0.566				95% KM (bootstrap t) UCL		3.505

	A	B	C	D	E	F	G	H	I	J	K	L
598					Maximum	5.6					95% KM (BCA) UCL	3.881
599					Mean	2.777					95% KM (percentile) UCL	3.731
600					Median	2.504					95% KM (Chebyshev) UCL	4.471
601					SD	1.554					97.5% KM (Chebyshev) UCL	5.2
602					k star	2.473					99% KM (Chebyshev) UCL	6.631
603					Theta star	1.123						
604					Nu star	79.14			**Potential UCLs to Use**			
605					AppChi2	59.64					95% KM (t) UCL	3.465
606				95% Gamma Approximate UCL		3.685				95% KM (Percentile Bootstrap) UCL		3.731
607				95% Adjusted Gamma UCL		3.808						
608												
609												
610	**Heptachlor Epoxide**											
611												
612					**General Statistics**							
613					Number of Valid Samples	16					Number of Detected Data	13
614					Number of Unique Samples	13					Number of Non-Detect Data	3
615											Percent Non-Detects	18.75%
616												
617				**Raw Statistics**					**Log-transformed Statistics**			
618					Minimum Detected	0.33					Minimum Detected	-1.109
619					Maximum Detected	2.9					Maximum Detected	1.065
620					Mean of Detected	0.992					Mean of Detected	-0.357
621					SD of Detected	0.96					SD of Detected	0.813
622					Minimum Non-Detect	0.32					Minimum Non-Detect	-1.139
623					Maximum Non-Detect	0.33					Maximum Non-Detect	-1.109
624												
625	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
626	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	13
627	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	18.75%
628												
629					**UCL Statistics**							
630				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
631					Shapiro Wilk Test Statistic	0.693					Shapiro Wilk Test Statistic	0.807
632					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
633				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
634												
635				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
636					DL/2 Substitution Method						DL/2 Substitution Method	
637					Mean	0.837					Mean	-0.632
638					SD	0.922					SD	0.937
639					95% DL/2 (t) UCL	1.24					95% H-Stat (DL/2) UCL	1.396
640												
641					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
642					Mean	0.742					Mean in Log Scale	-0.701
643					SD	1.008					SD in Log Scale	1.04
644					95% MLE (t) UCL	1.184					Mean in Original Scale	0.828
645					95% MLE (Tiku) UCL	1.175					SD in Original Scale	0.929
646											95% Percentile Bootstrap UCL	1.21
647											95% BCA Bootstrap UCL	1.323
648												
649				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			

	A	B	C	D	E	F	G	H	I	J	K	L
650					k star (bias corrected)	1.264	**Data do not follow a Discernable Distribution (0.05)**					
651					Theta Star	0.785						
652					nu star	32.87						
653												
654					A-D Test Statistic	1.373	**Nonparametric Statistics**					
655					5% A-D Critical Value	0.749					Kaplan-Meier (KM) Method	
656					K-S Test Statistic	0.749					Mean	0.868
657					5% K-S Critical Value	0.241					SD	0.871
658	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.227
659											95% KM (t) UCL	1.265
660	**Assuming Gamma Distribution**										95% KM (z) UCL	1.241
661				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	1.26
662					Minimum	0					95% KM (bootstrap t) UCL	1.457
663					Maximum	2.9					95% KM (BCA) UCL	1.287
664					Mean	0.806					95% KM (percentile) UCL	1.238
665					Median	0.42					95% KM (Chebyshev) UCL	1.856
666					SD	0.947					97.5% KM (Chebyshev) UCL	2.283
667					k star	0.194					99% KM (Chebyshev) UCL	3.122
668					Theta star	4.153						
669					Nu star	6.213	**Potential UCLs to Use**					
670					AppChi2	1.749					95% KM (Chebyshev) UCL	1.856
671					95% Gamma Approximate UCL	2.863						
672					95% Adjusted Gamma UCL	3.352						
673												

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3			From File	H:\JCV\Puritan\2007\EPCs\Surface Water\down_land_sw_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Benzo(b)fluoranthene**											
10												
11						**General Statistics**						
12						Number of Valid Samples	8			Number of Detected Data		2
13						Number of Unique Samples	2			Number of Non-Detect Data		6
14										Percent Non-Detects		75.00%
15												
16				**Raw Statistics**						**Log-transformed Statistics**		
17						Minimum Detected	0.12			Minimum Detected		-2.12
18						Maximum Detected	0.18			Maximum Detected		-1.715
19						Mean of Detected	0.15			Mean of Detected		-1.918
20						SD of Detected	0.0424			SD of Detected		0.287
21						Minimum Non-Detect	0.057			Minimum Non-Detect		-2.865
22						Maximum Non-Detect	0.1			Maximum Non-Detect		-2.303
23												
24				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		6
25				For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected		2
26				those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		75.00%
27												
28						**UCL Statistics**						
29				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	1			Shapiro Wilk Test Statistic		1
31						5% Shapiro Wilk Critical Value	N/A			5% Shapiro Wilk Critical Value		N/A
32				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
33												
34				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	0.0716			Mean		-2.812
37						SD	0.0515			SD		0.594
38						95% DL/2 (t) UCL	0.106			95% H-Stat (DL/2) UCL		0.0794
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Robust ROS Method		
41										Mean in Log Scale		-3.03
42										SD in Log Scale		0.78
43										Mean in Original Scale		0.0643
44										SD in Original Scale		0.0566
45										95% Percentile Bootstrap UCL		0.0962
46										95% BCA Bootstrap UCL		0.104
47												
48				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
49						k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**		
50						Theta Star	N/A					
51						nu star	N/A					
52												
53						A-D Test Statistic	0.359			**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	N/A					Mean	0.128
56					5% K-S Critical Value	N/A					SD	0.0198
57				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.00992
58											95% KM (t) UCL	0.146
59				**Assuming Gamma Distribution**							95% KM (z) UCL	0.144
60				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.171
61					Minimum	N/A					95% KM (bootstrap t) UCL	0.128
62					Maximum	N/A					95% KM (BCA) UCL	1E+31
63					Mean	N/A					95% KM (percentile) UCL	1E+31
64					Median	N/A					95% KM (Chebyshev) UCL	0.171
65					SD	N/A					97.5% KM (Chebyshev) UCL	0.189
66					k star	N/A					99% KM (Chebyshev) UCL	0.226
67					Theta star	N/A						
68					Nu star	N/A				**Potential UCLs to Use**		
69					AppChi2	N/A					95% KM (t) UCL	0.146
70					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	1E+31
71					95% Adjusted Gamma UCL	N/A						
72				**Warning: Recommended UCL exceeds the maximum observation**								
73												
74												
75	**Chrysene**											
76												
77					**General Statistics**							
78					Number of Valid Samples	8					Number of Detected Data	2
79					Number of Unique Samples	2					Number of Non-Detect Data	6
80											Percent Non-Detects	75.00%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83					Minimum Detected	0.072					Minimum Detected	-2.631
84					Maximum Detected	0.15					Maximum Detected	-1.897
85					Mean of Detected	0.111					Mean of Detected	-2.264
86					SD of Detected	0.0552					SD of Detected	0.519
87					Minimum Non-Detect	0.051					Minimum Non-Detect	-2.976
88					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	7
91	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
92	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	87.50%
93												
94					**UCL Statistics**							
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
97					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
98				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method						DL/2 Substitution Method	
102					Mean	0.0622					Mean	-2.897
103					SD	0.0376					SD	0.495
104					95% DL/2 (t) UCL	0.0874					95% H-Stat (DL/2) UCL	0.0862
105												
106					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	

	A	B	C	D	E	F	G	H	I	J	K	L
107											Mean in Log Scale	-2.874
108											SD in Log Scale	0.546
109											Mean in Original Scale	0.0648
110											SD in Original Scale	0.0394
111											95% Percentile Bootstrap UCL	0.0871
112											95% BCA Bootstrap UCL	0.0958
113												
114				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
115					k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**			
116					Theta Star	N/A						
117					nu star	N/A						
118												
119					A-D Test Statistic	0.359			**Nonparametric Statistics**			
120					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
121					K-S Test Statistic	N/A				Mean		0.0818
122					5% K-S Critical Value	N/A				SD		0.0258
123				**Data not Gamma Distributed at 5% Significance Level**						SE of Mean		0.0129
124										95% KM (t) UCL		0.106
125				**Assuming Gamma Distribution**						95% KM (z) UCL		0.103
126					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.138
127					Minimum	N/A				95% KM (bootstrap t) UCL		1.8E+308
128					Maximum	N/A				95% KM (BCA) UCL		0.15
129					Mean	N/A				95% KM (percentile) UCL		1E+31
130					Median	N/A				95% KM (Chebyshev) UCL		0.138
131					SD	N/A				97.5% KM (Chebyshev) UCL		0.162
132					k star	N/A				99% KM (Chebyshev) UCL		0.21
133					Theta star	N/A						
134					Nu star	N/A			**Potential UCLs to Use**			
135					AppChi2	N/A				95% KM (t) UCL		0.106
136					95% Gamma Approximate UCL	N/A				95% KM (% Bootstrap) UCL		1E+31
137					95% Adjusted Gamma UCL	N/A						
138				**Warning: Recommended UCL exceeds the maximum observation**								
139												
140												
141	**Dieldrin**											
142												
143					**General Statistics**							
144					Number of Valid Samples	8				Number of Detected Data		3
145					Number of Unique Samples	2				Number of Non-Detect Data		5
146										Percent Non-Detects		62.50%
147												
148				**Raw Statistics**					**Log-transformed Statistics**			
149					Minimum Detected	0.0013				Minimum Detected		-6.645
150					Maximum Detected	0.012				Maximum Detected		-4.423
151					Mean of Detected	0.00487				Mean of Detected		-5.905
152					SD of Detected	0.00618				SD of Detected		1.283
153					Minimum Non-Detect	0.005				Minimum Non-Detect		-5.298
154					Maximum Non-Detect	0.0056				Maximum Non-Detect		-5.185
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		7
157	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
158	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		87.50%
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	**UCL Statistics**											
161	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
162					Shapiro Wilk Test Statistic	0.75				Shapiro Wilk Test Statistic		0.75
163					5% Shapiro Wilk Critical Value	0.767				5% Shapiro Wilk Critical Value		0.767
164	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
165												
166	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
167					DL/2 Substitution Method					DL/2 Substitution Method		
168					Mean	0.00346				Mean		-5.931
169					SD	0.0035				SD		0.688
170					95% DL/2 (t) UCL	0.00581				95% H-Stat (DL/2) UCL		0.0111
171												
172					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
173										Mean in Log Scale		-6.311
174										SD in Log Scale		0.875
175										Mean in Original Scale		0.00283
176										SD in Original Scale		0.00376
177										95% Percentile Bootstrap UCL		0.00535
178										95% BCA Bootstrap UCL		0.0066
179												
180	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
181					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
182					Theta Star	N/A						
183					nu star	N/A						
184												
185					A-D Test Statistic	0.615	**Nonparametric Statistics**					
186					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
187					K-S Test Statistic	N/A				Mean		0.00264
188					5% K-S Critical Value	N/A				SD		0.00354
189	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		0.00153
190										95% KM (t) UCL		0.00554
191	**Assuming Gamma Distribution**									95% KM (z) UCL		0.00516
192					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.00517
193					Minimum	N/A				95% KM (bootstrap t) UCL		1.8E+308
194					Maximum	N/A				95% KM (BCA) UCL		0.00398
195					Mean	N/A				95% KM (percentile) UCL		0.012
196					Median	N/A				95% KM (Chebyshev) UCL		0.00932
197					SD	N/A				97.5% KM (Chebyshev) UCL		0.0122
198					k star	N/A				99% KM (Chebyshev) UCL		0.0179
199					Theta star	N/A						
200					Nu star	N/A	**Potential UCLs to Use**					
201					AppChi2	N/A				95% KM (BCA) UCL		0.00398
202					95% Gamma Approximate UCL	N/A						
203					95% Adjusted Gamma UCL	N/A						
204												
205												
206	**Aluminum**											
207												
208	**General Statistics**											
209					Number of Valid Samples	8				Number of Detected Data		6
210					Number of Unique Samples	6				Number of Non-Detect Data		2
211										Percent Non-Detects		25.00%
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	**Raw Statistics**						**Log-transformed Statistics**					
214					Minimum Detected	40.5				Minimum Detected		3.701
215					Maximum Detected	350				Maximum Detected		5.858
216					Mean of Detected	221.4				Mean of Detected		5.067
217					SD of Detected	143.2				SD of Detected		1.038
218					Minimum Non-Detect	200				Minimum Non-Detect		5.298
219					Maximum Non-Detect	200				Maximum Non-Detect		5.298
220												
221												
222	**UCL Statistics**											
223	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
224					Shapiro Wilk Test Statistic	0.794				Shapiro Wilk Test Statistic		0.724
225					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
226	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
227												
228	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
229					DL/2 Substitution Method					DL/2 Substitution Method		
230					Mean	191				Mean		4.951
231					SD	133.4				SD		0.903
232					95% DL/2 (t) UCL	280.4				95% H-Stat (DL/2) UCL		1062
233												
234					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
235					Mean	213.7				Mean in Log Scale		4.791
236					SD	110.9				SD in Log Scale		1.028
237					95% MLE (t) UCL	288				Mean in Original Scale		179.9
238					95% MLE (Tiku) UCL	305.1				SD in Original Scale		143.7
239										95% Percentile Bootstrap UCL		257.2
240										95% BCA Bootstrap UCL		262.6
241												
242	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
243					k star (bias corrected)	0.935	**Data appear Normal at 5% Significance Level**					
244					Theta Star	236.9						
245					nu star	11.22						
246												
247					A-D Test Statistic	0.872	**Nonparametric Statistics**					
248					5% A-D Critical Value	0.707				Kaplan-Meier (KM) Method		
249					K-S Test Statistic	0.707				Mean		176.5
250					5% K-S Critical Value	0.337				SD		137.3
251	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		53.19
252										95% KM (t) UCL		277.3
253	**Assuming Gamma Distribution**									95% KM (z) UCL		264
254					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		274.9
255					Minimum	186.9				95% KM (bootstrap t) UCL		278.1
256					Maximum	350				95% KM (BCA) UCL		300.6
257					Mean	267.4				95% KM (percentile) UCL		294
258					Median	262.3				95% KM (Chebyshev) UCL		408.4
259					SD	58.21				97.5% KM (Chebyshev) UCL		508.7
260					k star	15.32				99% KM (Chebyshev) UCL		705.7
261					Theta star	17.46						
262					Nu star	245.1	**Potential UCLs to Use**					
263					AppChi2	209.9				95% KM (t) UCL		277.3
264					95% Gamma Approximate UCL	312.3				95% KM (Percentile Bootstrap) UCL		294
265					95% Adjusted Gamma UCL	325.1						

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267												
268	**Arsenic**											
269												
270						**General Statistics**						
271					Number of Valid Samples	8				Number of Unique Samples		8
272												
273				**Raw Statistics**						**Log-transformed Statistics**		
274					Minimum	1.63				Minimum of Log Data		0.489
275					Maximum	4.08				Maximum of Log Data		1.406
276					Mean	2.353				Mean of log Data		0.798
277					Median	1.925				SD of log Data		0.347
278					SD	0.936						
279					Coefficient of Variation	0.398						
280					Skewness	1.421						
281												
282						**Relevant UCL Statistics**						
283				**Normal Distribution Test**						**Lognormal Distribution Test**		
284					Shapiro Wilk Test Statistic	0.736				Shapiro Wilk Test Statistic		0.786
285					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
286				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
287												
288				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
289					95% Student's-t UCL	2.979				95% H-UCL		3.121
290				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		3.596
291					95% Adjusted-CLT UCL	3.074				97.5% Chebyshev (MVUE) UCL		4.14
292					95% Modified-t UCL	3.007				99% Chebyshev (MVUE) UCL		5.208
293												
294				**Gamma Distribution Test**						**Nonparametric Test**		
295					k star (bias corrected)	5.587				**Data do not follow a Discernable Distribution (0.05)**		
296					Theta Star	0.421						
297					nu star	89.4						
298					Approximate Chi Square Value (.05)	68.6				**Nonparametric Statistics**		
299					Adjusted Level of Significance	0.0195				95% CLT UCL		2.897
300					Adjusted Chi Square Value	64				95% Jackknife UCL		2.979
301										95% Standard Bootstrap UCL		2.864
302					Anderson-Darling Test Statistic	0.983				95% Bootstrap-t UCL		5.31
303					Anderson-Darling 5% Critical Value	0.716				95% Hall's Bootstrap UCL		7.428
304					Kolmogorov-Smirnov Test Statistic	0.336				95% Percentile Bootstrap UCL		2.883
305					Kolmogorov-Smirnov 5% Critical Value	0.295				95% BCA Bootstrap UCL		3.018
306				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		3.794
307										97.5% Chebyshev(Mean, Sd) UCL		4.418
308				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		5.644
309					95% Approximate Gamma UCL	3.066						
310					95% Adjusted Gamma UCL	3.286						
311												
312				**Potential UCL to Use**						Use 95% Student's-t UCL		2.979
313										or 95% Modified-t UCL		3.007
314												
315												
316	**Barium**											
317												
318						**General Statistics**						

	A–E	F	G–K	L
319	Number of Valid Samples	8	Number of Detected Data	4
320	Number of Unique Samples	4	Number of Non-Detect Data	4
321			Percent Non-Detects	50.00%
322				
323	**Raw Statistics**		**Log-transformed Statistics**	
324	Minimum Detected	23	Minimum Detected	3.135
325	Maximum Detected	74.7	Maximum Detected	4.313
326	Mean of Detected	43.3	Mean of Detected	3.642
327	SD of Detected	24.75	SD of Detected	0.581
328	Minimum Non-Detect	28.8	Minimum Non-Detect	3.36
329	Maximum Non-Detect	200	Maximum Non-Detect	5.298
330				
331	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	8
332	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	0
333	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
334				
335	**UCL Statistics**			
336	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
337	Shapiro Wilk Test Statistic	0.877	Shapiro Wilk Test Statistic	0.868
338	5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
339	**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
340				
341	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
342	DL/2 Substitution Method		DL/2 Substitution Method	
343	Mean	50.31	Mean	3.643
344	SD	36.88	SD	0.82
345	95% DL/2 (t) UCL	75.01	95% H-Stat (DL/2) UCL	428.4
346				
347	Maximum Likelihood Estimate(MLE) Method	N/A	Robust ROS Method	
348			Mean in Log Scale	3.49
349			SD in Log Scale	0.45
350			Mean in Original Scale	36.14
351			SD in Original Scale	18.83
352			95% Percentile Bootstrap UCL	46.93
353			95% BCA Bootstrap UCL	49.41
354				
355	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
356	k star (bias corrected)	1.199	**Data appear Normal at 5% Significance Level**	
357	Theta Star	36.13		
358	nu star	9.588		
359				
360	A-D Test Statistic	0.422	**Nonparametric Statistics**	
361	5% A-D Critical Value	0.659	Kaplan-Meier (KM) Method	
362	K-S Test Statistic	0.659	Mean	36.7
363	5% K-S Critical Value	0.396	SD	19.84
364	**Data appear Gamma Distributed at 5% Significance Level**		SE of Mean	9.353
365			95% KM (t) UCL	54.42
366	**Assuming Gamma Distribution**		95% KM (z) UCL	52.08
367	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	53.94
368	Minimum	N/A	95% KM (bootstrap t) UCL	58.26
369	Maximum	N/A	95% KM (BCA) UCL	59.23
370	Mean	N/A	95% KM (percentile) UCL	59.23
371	Median	N/A	95% KM (Chebyshev) UCL	77.47

	A	B	C	D	E	F	G	H	I	J	K	L
372					SD	N/A					97.5% KM (Chebyshev) UCL	95.11
373					k star	N/A					99% KM (Chebyshev) UCL	129.8
374					Theta star	N/A						
375					Nu star	N/A	**Potential UCLs to Use**					
376					AppChi2	N/A					95% KM (t) UCL	54.42
377				95% Gamma Approximate UCL		N/A					95% KM (Percentile Bootstrap) UCL	59.23
378				95% Adjusted Gamma UCL		N/A						
379												
380												
381	**Cadmium**											
382												
383					**General Statistics**							
384					Number of Valid Samples	8					Number of Detected Data	7
385					Number of Unique Samples	7					Number of Non-Detect Data	1
386											Percent Non-Detects	12.50%
387												
388				**Raw Statistics**					**Log-transformed Statistics**			
389					Minimum Detected	0.25					Minimum Detected	-1.386
390					Maximum Detected	0.74					Maximum Detected	-0.301
391					Mean of Detected	0.462					Mean of Detected	-0.88
392					SD of Detected	0.228					SD of Detected	0.502
393					Minimum Non-Detect	0.46					Minimum Non-Detect	-0.777
394					Maximum Non-Detect	0.46					Maximum Non-Detect	-0.777
395												
396												
397					**UCL Statistics**							
398				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
399					Shapiro Wilk Test Statistic	0.783					Shapiro Wilk Test Statistic	0.801
400					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
401				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
402												
403				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
404					DL/2 Substitution Method						DL/2 Substitution Method	
405					Mean	0.433					Mean	-0.954
406					SD	0.227					SD	0.51
407					95% DL/2 (t) UCL	0.585					95% H-Stat (DL/2) UCL	0.615
408												
409					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
410					Mean	0.4					Mean in Log Scale	-0.919
411					SD	0.273					SD in Log Scale	0.478
412					95% MLE (t) UCL	0.584					Mean in Original Scale	0.442
413					95% MLE (Tiku) UCL	0.666					SD in Original Scale	0.219
414											95% Percentile Bootstrap UCL	0.56
415											95% BCA Bootstrap UCL	0.586
416												
417				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
418					k star (bias corrected)	2.833			**Data Follow Appr. Gamma Distribution at 5% Significance Level**			
419					Theta Star	0.163						
420					nu star	39.66						
421												
422					A-D Test Statistic	0.772			**Nonparametric Statistics**			
423					5% A-D Critical Value	0.71					Kaplan-Meier (KM) Method	
424					K-S Test Statistic	0.71					Mean	0.44

	A	B	C	D	E	F	G	H	I	J	K	L
425					5% K-S Critical Value	0.313					SD	0.207
426	Data follow approximate Gamma Distribution at 5% Significance Level										SE of Mean	0.0792
427											95% KM (t) UCL	0.59
428			Assuming Gamma Distribution								95% KM (z) UCL	0.57
429				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.588
430					Minimum	N/A					95% KM (bootstrap t) UCL	0.619
431					Maximum	N/A					95% KM (BCA) UCL	0.558
432					Mean	N/A					95% KM (percentile) UCL	0.564
433					Median	N/A					95% KM (Chebyshev) UCL	0.785
434					SD	N/A					97.5% KM (Chebyshev) UCL	0.934
435					k star	N/A					99% KM (Chebyshev) UCL	1.228
436					Theta star	N/A						
437					Nu star	N/A			Potential UCLs to Use			
438					AppChi2	N/A					95% KM (BCA) UCL	0.558
439					95% Gamma Approximate UCL	N/A						
440					95% Adjusted Gamma UCL	N/A						
441												
442												
443	Chromium											
444												
445					General Statistics							
446					Number of Valid Samples	8					Number of Detected Data	6
447					Number of Unique Samples	6					Number of Non-Detect Data	2
448											Percent Non-Detects	25.00%
449												
450					Raw Statistics						Log-transformed Statistics	
451					Minimum Detected	0.9					Minimum Detected	-0.105
452					Maximum Detected	4.95					Maximum Detected	1.599
453					Mean of Detected	2.669					Mean of Detected	0.789
454					SD of Detected	1.622					SD of Detected	0.721
455					Minimum Non-Detect	0.66					Minimum Non-Detect	-0.416
456					Maximum Non-Detect	0.73					Maximum Non-Detect	-0.315
457												
458	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	2
459	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
460	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	25.00%
461												
462					UCL Statistics							
463					Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only	
464					Shapiro Wilk Test Statistic	0.923					Shapiro Wilk Test Statistic	0.884
465					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
466					Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
467												
468					Assuming Normal Distribution						Assuming Lognormal Distribution	
469					DL/2 Substitution Method						DL/2 Substitution Method	
470					Mean	2.089					Mean	0.327
471					SD	1.742					SD	1.05
472					95% DL/2 (t) UCL	3.256					95% H-Stat (DL/2) UCL	6.508
473												
474					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
475					Mean	1.889					Mean in Log Scale	0.348
476					SD	1.925					SD in Log Scale	1.018
477					95% MLE (t) UCL	3.178					Mean in Original Scale	2.096

	A	B	C	D	E	F	G	H	I	J	K	L
478					95% MLE (Tiku) UCL	3.228					SD in Original Scale	1.733
479											95% Percentile Bootstrap UCL	3.098
480											95% BCA Bootstrap UCL	3.144
481												
482			**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**			
483					k star (bias corrected)	1.484			**Data appear Normal at 5% Significance Level**			
484					Theta Star	1.799						
485					nu star	17.81						
486												
487					A-D Test Statistic	0.377			**Nonparametric Statistics**			
488					5% A-D Critical Value	0.702					Kaplan-Meier (KM) Method	
489					K-S Test Statistic	0.702					Mean	2.227
490					5% K-S Critical Value	0.335					SD	1.494
491			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.579
492											95% KM (t) UCL	3.323
493			**Assuming Gamma Distribution**								95% KM (z) UCL	3.179
494				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	3.291
495					Minimum	0.333					95% KM (bootstrap t) UCL	3.488
496					Maximum	4.95					95% KM (BCA) UCL	3.402
497					Mean	2.133					95% KM (percentile) UCL	3.269
498					Median	1.533					95% KM (Chebyshev) UCL	4.749
499					SD	1.695					97.5% KM (Chebyshev) UCL	5.84
500					k star	1.081					99% KM (Chebyshev) UCL	7.983
501					Theta star	1.974						
502					Nu star	17.29			**Potential UCLs to Use**			
503					AppChi2	8.882					95% KM (t) UCL	3.323
504					95% Gamma Approximate UCL	4.154					95% KM (Percentile Bootstrap) UCL	3.269
505					95% Adjusted Gamma UCL	4.98						
506												
507												
508	**Copper**											
509												
510					**General Statistics**							
511					Number of Valid Samples	8					Number of Detected Data	2
512					Number of Unique Samples	2					Number of Non-Detect Data	6
513											Percent Non-Detects	75.00%
514												
515			**Raw Statistics**						**Log-transformed Statistics**			
516					Minimum Detected	7.7					Minimum Detected	2.041
517					Maximum Detected	9.6					Maximum Detected	2.262
518					Mean of Detected	8.65					Mean of Detected	2.151
519					SD of Detected	1.344					SD of Detected	0.156
520					Minimum Non-Detect	5.7					Minimum Non-Detect	1.74
521					Maximum Non-Detect	25					Maximum Non-Detect	3.219
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
525	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
526												
527					**UCL Statistics**							
528			**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**			
529					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
530					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
531	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
532												
533	Assuming Normal Distribution						Assuming Lognormal Distribution					
534					DL/2 Substitution Method						DL/2 Substitution Method	
535					Mean	8.331					Mean	1.99
536					SD	4.036					SD	0.578
537					95% DL/2 (t) UCL	11.03					95% H-Stat (DL/2) UCL	30.31
538												
539					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
540											Mean in Log Scale	2.009
541											SD in Log Scale	0.149
542											Mean in Original Scale	7.53
543											SD in Original Scale	1.148
544											95% Percentile Bootstrap UCL	8.205
545											95% BCA Bootstrap UCL	8.217
546												
547	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
548					k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)					
549					Theta Star	N/A						
550					nu star	N/A						
551												
552					A-D Test Statistic	0.359	Nonparametric Statistics					
553					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
554					K-S Test Statistic	N/A					Mean	8.175
555					5% K-S Critical Value	N/A					SD	0.823
556	Data not Gamma Distributed at 5% Significance Level										SE of Mean	0.582
557											95% KM (t) UCL	9.277
558	Assuming Gamma Distribution										95% KM (z) UCL	9.132
559					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.638
560					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
561					Maximum	N/A					95% KM (BCA) UCL	1E+31
562					Mean	N/A					95% KM (percentile) UCL	1E+31
563					Median	N/A					95% KM (Chebyshev) UCL	10.71
564					SD	N/A					97.5% KM (Chebyshev) UCL	11.81
565					k star	N/A					99% KM (Chebyshev) UCL	13.96
566					Theta star	N/A						
567					Nu star	N/A	Potential UCLs to Use					
568					AppChi2	N/A					95% KM (t) UCL	9.277
569					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	1E+31
570					95% Adjusted Gamma UCL	N/A						
571	Warning: Recommended UCL exceeds the maximum observation											
572												
573												
574	Iron											
575												
576	General Statistics											
577					Number of Valid Samples	8					Number of Detected Data	6
578					Number of Unique Samples	6					Number of Non-Detect Data	2
579											Percent Non-Detects	25.00%
580												
581	Raw Statistics						Log-transformed Statistics					
582					Minimum Detected	596					Minimum Detected	6.39
583					Maximum Detected	8600					Maximum Detected	9.06

	A	B	C	D	E	F	G	H	I	J	K	L
584					Mean of Detected	2959					Mean of Detected	7.318
585					SD of Detected	3593					SD of Detected	1.244
586					Minimum Non-Detect	368					Minimum Non-Detect	5.908
587					Maximum Non-Detect	423					Maximum Non-Detect	6.047
588												
589	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	2
590	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
591	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	25.00%
592												
593					**UCL Statistics**							
594				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
595					Shapiro Wilk Test Statistic	0.713					Shapiro Wilk Test Statistic	0.734
596					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
597				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
598												
599				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
600					DL/2 Substitution Method						DL/2 Substitution Method	
601					Mean	2269					Mean	6.81
602					SD	3294					SD	1.412
603					95% DL/2 (t) UCL	4476					95% H-Stat (DL/2) UCL	20931
604												
605					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
606					Mean	1683					Mean in Log Scale	6.594
607					SD	3741					SD in Log Scale	1.703
608					95% MLE (t) UCL	4188					Mean in Original Scale	2240
609					95% MLE (Tiku) UCL	4224					SD in Original Scale	3315
610											95% Percentile Bootstrap UCL	4069
611											95% BCA Bootstrap UCL	4626
612												
613				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
614					k star (bias corrected)	0.546				**Data do not follow a Discernable Distribution (0.05)**		
615					Theta Star	5418						
616					nu star	6.554						
617												
618					A-D Test Statistic	0.947				**Nonparametric Statistics**		
619					5% A-D Critical Value	0.718					Kaplan-Meier (KM) Method	
620					K-S Test Statistic	0.718					Mean	2368
621					5% K-S Critical Value	0.342					SD	3019
622				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	1169
623											95% KM (t) UCL	4584
624				**Assuming Gamma Distribution**							95% KM (z) UCL	4292
625					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4525
626					Minimum	0					95% KM (bootstrap t) UCL	73656
627					Maximum	8600					95% KM (BCA) UCL	4354
628					Mean	2219					95% KM (percentile) UCL	4337
629					Median	659.8					95% KM (Chebyshev) UCL	7465
630					SD	3331					97.5% KM (Chebyshev) UCL	9670
631					k star	0.151					99% KM (Chebyshev) UCL	14002
632					Theta star	14676						
633					Nu star	2.42				**Potential UCLs to Use**		
634					AppChi2	0.224					97.5% KM (Chebyshev) UCL	9670
635					95% Gamma Approximate UCL	24025						
636					95% Adjusted Gamma UCL	40309						

	A	B	C	D	E	F	G	H	I	J	K	L
637	Warning: Recommended UCL exceeds the maximum observation											
638												
639												
640	Lead											
641												
642	General Statistics											
643	Number of Valid Samples					8	Number of Detected Data					6
644	Number of Unique Samples					6	Number of Non-Detect Data					2
645							Percent Non-Detects					25.00%
646												
647	Raw Statistics						Log-transformed Statistics					
648	Minimum Detected					1.6	Minimum Detected					0.47
649	Maximum Detected					8.5	Maximum Detected					2.14
650	Mean of Detected					5.575	Mean of Detected					1.531
651	SD of Detected					3.053	SD of Detected					0.736
652	Minimum Non-Detect					2	Minimum Non-Detect					0.693
653	Maximum Non-Detect					2	Maximum Non-Detect					0.693
654												
655												
656	UCL Statistics											
657	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
658	Shapiro Wilk Test Statistic					0.844	Shapiro Wilk Test Statistic					0.804
659	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
660	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
661												
662	Assuming Normal Distribution						Assuming Lognormal Distribution					
663	DL/2 Substitution Method						DL/2 Substitution Method					
664	Mean					4.431	Mean					1.149
665	SD					3.338	SD					0.943
666	95% DL/2 (t) UCL					6.667	95% H-Stat (DL/2) UCL					11.63
667												
668	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
669	Mean					3.694	Mean in Log Scale					1.258
670	SD					4.15	SD in Log Scale					0.811
671	95% MLE (t) UCL					6.474	Mean in Original Scale					4.577
672	95% MLE (Tiku) UCL					6.8	SD in Original Scale					3.179
673							95% Percentile Bootstrap UCL					6.338
674							95% BCA Bootstrap UCL					6.262
675												
676	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
677	k star (bias corrected)					1.527	Data appear Normal at 5% Significance Level					
678	Theta Star					3.65						
679	nu star					18.33						
680												
681	A-D Test Statistic					0.631	Nonparametric Statistics					
682	5% A-D Critical Value					0.702	Kaplan-Meier (KM) Method					
683	K-S Test Statistic					0.702	Mean					4.581
684	5% K-S Critical Value					0.335	SD					2.965
685	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.148
686							95% KM (t) UCL					6.757
687	Assuming Gamma Distribution						95% KM (z) UCL					6.47
688	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.68
689	Minimum					2.1	95% KM (bootstrap t) UCL					6.701

	A	B	C	D	E	F	G	H	I	J	K	L
690					Maximum	8.5				95% KM (BCA) UCL		7.075
691					Mean	5.106				95% KM (percentile) UCL		7.075
692					Median	4.621				95% KM (Chebyshev) UCL		9.586
693					SD	2.668				97.5% KM (Chebyshev) UCL		11.75
694					k star	2.499				99% KM (Chebyshev) UCL		16.01
695					Theta star	2.043						
696					Nu star	39.99				**Potential UCLs to Use**		
697					AppChi2	26.5				95% KM (t) UCL		6.757
698				95% Gamma Approximate UCL		7.705				95% KM (Percentile Bootstrap) UCL		7.075
699				95% Adjusted Gamma UCL		8.594						
700												
701												
702	**Manganese**											
703												
704					**General Statistics**							
705				Number of Valid Samples		8				Number of Unique Samples		8
706												
707				**Raw Statistics**						**Log-transformed Statistics**		
708					Minimum	80.3				Minimum of Log Data		4.386
709					Maximum	418				Maximum of Log Data		6.035
710					Mean	145.1				Mean of log Data		4.795
711					Median	93.8				SD of log Data		0.575
712					SD	116.6						
713					Coefficient of Variation	0.804						
714					Skewness	2.341						
715												
716					**Relevant UCL Statistics**							
717				**Normal Distribution Test**						**Lognormal Distribution Test**		
718					Shapiro Wilk Test Statistic	0.619				Shapiro Wilk Test Statistic		0.722
719					Shapiro Wilk Critical Value	0.818				Shapiro Wilk Critical Value		0.818
720				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
721												
722				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
723					95% Student's-t UCL	223.1				95% H-UCL		246.9
724				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		264.5
725					95% Adjusted-CLT UCL	249.3				97.5% Chebyshev (MVUE) UCL		318.7
726					95% Modified-t UCL	228.8				99% Chebyshev (MVUE) UCL		425
727												
728				**Gamma Distribution Test**						**Nonparametric Test**		
729					k star (bias corrected)	1.893				**Data do not follow a Discernable Distribution (0.05)**		
730					Theta Star	76.61						
731					nu star	30.29						
732					Approximate Chi Square Value (.05)	18.72				**Nonparametric Statistics**		
733					Adjusted Level of Significance	0.0195				95% CLT UCL		212.8
734					Adjusted Chi Square Value	16.47				95% Jackknife UCL		223.1
735										95% Standard Bootstrap UCL		206.8
736					Anderson-Darling Test Statistic	1.244				95% Bootstrap-t UCL		1010
737					Anderson-Darling 5% Critical Value	0.722				95% Hall's Bootstrap UCL		665.4
738					Kolmogorov-Smirnov Test Statistic	0.384				95% Percentile Bootstrap UCL		214.4
739					Kolmogorov-Smirnov 5% Critical Value	0.296				95% BCA Bootstrap UCL		253.8
740				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		324.7
741										97.5% Chebyshev(Mean, Sd) UCL		402.4
742				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		555.1

	A	B	C	D	E	F	G	H	I	J	K	L
743				95% Approximate Gamma UCL		234.7						
744				95% Adjusted Gamma UCL		266.9						
745												
746				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL		324.7
747												
748												
749	**Mercury**											
750												
751					**General Statistics**							
752				Number of Valid Samples		8				Number of Detected Data		2
753				Number of Unique Samples		2				Number of Non-Detect Data		6
754										Percent Non-Detects		75.00%
755												
756				**Raw Statistics**						**Log-transformed Statistics**		
757				Minimum Detected		0.014				Minimum Detected		-4.269
758				Maximum Detected		0.016				Maximum Detected		-4.135
759				Mean of Detected		0.015				Mean of Detected		-4.202
760				SD of Detected		0.00141				SD of Detected		0.0944
761				Minimum Non-Detect		0.13				Minimum Non-Detect		-2.04
762				Maximum Non-Detect		0.15				Maximum Non-Detect		-1.897
763												
764	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		8
765	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		0
766	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
767												
768					**UCL Statistics**							
769				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
770				Shapiro Wilk Test Statistic		1				Shapiro Wilk Test Statistic		1
771				5% Shapiro Wilk Critical Value		N/A				5% Shapiro Wilk Critical Value		N/A
772				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
773												
774				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
775				DL/2 Substitution Method						DL/2 Substitution Method		
776				Mean		0.0569				Mean		-3.037
777				SD		0.026				SD		0.721
778				95% DL/2 (t) UCL		0.0743				95% H-Stat (DL/2) UCL		0.606
779												
780				Maximum Likelihood Estimate(MLE) Method		N/A				Robust ROS Method		
781										Mean in Log Scale		-4.202
782										SD in Log Scale		0.0753
783										Mean in Original Scale		0.015
784										SD in Original Scale		0.00113
785										95% Percentile Bootstrap UCL		0.0156
786										95% BCA Bootstrap UCL		0.0156
787												
788				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
789				k star (bias corrected)		N/A				**Data do not follow a Discernable Distribution (0.05)**		
790				Theta Star		N/A						
791				nu star		N/A						
792												
793				A-D Test Statistic		0.359				**Nonparametric Statistics**		
794				5% A-D Critical Value		N/A				Kaplan-Meier (KM) Method		
795				K-S Test Statistic		N/A				Mean		0.015

	A	B	C	D	E	F	G	H	I	J	K	L
796					5% K-S Critical Value	N/A					SD	0.001
797	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.001
798											95% KM (t) UCL	0.0169
799	**Assuming Gamma Distribution**										95% KM (z) UCL	0.0166
800				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.0175
801					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
802					Maximum	N/A					95% KM (BCA) UCL	1E+31
803					Mean	N/A					95% KM (percentile) UCL	1E+31
804					Median	N/A					95% KM (Chebyshev) UCL	0.0194
805					SD	N/A					97.5% KM (Chebyshev) UCL	0.0212
806					k star	N/A					99% KM (Chebyshev) UCL	0.0249
807					Theta star	N/A						
808					Nu star	N/A	**Potential UCLs to Use**					
809					AppChi2	N/A					95% KM (t) UCL	0.0169
810					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	1E+31
811					95% Adjusted Gamma UCL	N/A						
812	**Warning: Recommended UCL exceeds the maximum observation**											
813												
814												
815	**Vanadium**											
816												
817					**General Statistics**							
818					Number of Valid Samples	8					Number of Detected Data	7
819					Number of Unique Samples	7					Number of Non-Detect Data	1
820											Percent Non-Detects	12.50%
821												
822	**Raw Statistics**						**Log-transformed Statistics**					
823					Minimum Detected	0.47					Minimum Detected	-0.755
824					Maximum Detected	2.7					Maximum Detected	0.993
825					Mean of Detected	1.341					Mean of Detected	0.0712
826					SD of Detected	0.926					SD of Detected	0.729
827					Minimum Non-Detect	0.72					Minimum Non-Detect	-0.329
828					Maximum Non-Detect	0.72					Maximum Non-Detect	-0.329
829												
830												
831					**UCL Statistics**							
832	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
833					Shapiro Wilk Test Statistic	0.838					Shapiro Wilk Test Statistic	0.867
834					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
835	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
836												
837	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
838					DL/2 Substitution Method						DL/2 Substitution Method	
839					Mean	1.219					Mean	-0.0654
840					SD	0.925					SD	0.778
841					95% DL/2 (t) UCL	1.838					95% H-Stat (DL/2) UCL	2.92
842												
843					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
844					Mean	0.793					Mean in Log Scale	-0.00705
845					SD	1.361					SD in Log Scale	0.71
846					95% MLE (t) UCL	1.704					Mean in Original Scale	1.246
847					95% MLE (Tiku) UCL	1.914					SD in Original Scale	0.899
848											95% Percentile Bootstrap UCL	1.747

	A	B	C	D	E	F	G	H	I	J	K	L
849											95% BCA Bootstrap UCL	1.834
850												
851				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
852					k star (bias corrected)	1.467			**Data appear Normal at 5% Significance Level**			
853					Theta Star	0.915						
854					nu star	20.54						
855												
856					A-D Test Statistic	0.577			**Nonparametric Statistics**			
857					5% A-D Critical Value	0.714					Kaplan-Meier (KM) Method	
858					K-S Test Statistic	0.714					Mean	1.244
859					5% K-S Critical Value	0.315					SD	0.843
860				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.322
861											95% KM (t) UCL	1.854
862				**Assuming Gamma Distribution**							95% KM (z) UCL	1.774
863					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.849
864					Minimum	0.444					95% KM (bootstrap t) UCL	2.035
865					Maximum	2.7					95% KM (BCA) UCL	1.775
866					Mean	1.33					95% KM (percentile) UCL	1.775
867					Median	0.929					95% KM (Chebyshev) UCL	2.648
868					SD	0.842					97.5% KM (Chebyshev) UCL	3.256
869					k star	1.907					99% KM (Chebyshev) UCL	4.449
870					Theta star	0.698						
871					Nu star	30.51			**Potential UCLs to Use**			
872					AppChi2	18.89					95% KM (t) UCL	1.854
873					95% Gamma Approximate UCL	2.148					95% KM (Percentile Bootstrap) UCL	1.775
874					95% Adjusted Gamma UCL	2.442						
875												

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	H:\JCV\Puritan\2007\EPCs\Groundwater\shallow_gw_ucl_data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Isopropylbenzene

General Statistics

Number of Valid Samples	98	Number of Detected Data	12
Number of Unique Samples	12	Number of Non-Detect Data	86
		Percent Non-Detects	87.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.24	Minimum Detected	-1.427
Maximum Detected	160	Maximum Detected	5.075
Mean of Detected	16.57	Mean of Detected	0.968
SD of Detected	45.3	SD of Detected	1.792
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.389	Lilliefors Test Statistic	0.901
5% Lilliefors Critical Value	0.859	5% Lilliefors Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.249	Mean	-1.098
SD	16.18	SD	0.983
95% DL/2 (t) UCL	4.962	95% H-Stat (DL/2) UCL	0.592
Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
Mean	-76.85	Mean in Log Scale	-2.628
SD	60.76	SD in Log Scale	2.331
95% MLE (t) UCL	-66.65	Mean in Original Scale	2.171
95% MLE (Tiku) UCL	-36.44	SD in Original Scale	16.19
		95% Percentile Bootstrap UCL	5.327
		95% BCA Bootstrap UCL	8.612

Gamma Distribution Test with Detected Values Only		Nonparametic Test with Detected Values Only
k star (bias corrected)	0.328	Data appear Lognormal at 5% Significance Level
Theta Star	50.52	
nu star	7.873	
A-D Test Statistic	1.423	**Nonparametric Statistics**
5% A-D Critical Value	0.812	Kaplan-Meier (KM) Method
K-S Test Statistic	0.812	Mean 2.24
5% K-S Critical Value	0.263	SD 16.09
Data not Gamma Distributed at 5% Significance Level		SE of Mean 1.698
		95% KM (t) UCL 5.06
Assuming Gamma Distribution		95% KM (z) UCL 5.033
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 4.75
Minimum	0	95% KM (bootstrap t) UCL 27.26
Maximum	160	95% KM (BCA) UCL 6.877
Mean	2.027	95% KM (percentile) UCL 5.584
Median	0	95% KM (Chebyshev) UCL 9.641
SD	16.2	97.5% KM (Chebyshev) UCL 12.84
k star	0.0518	99% KM (Chebyshev) UCL 19.13
Theta star	39.12	
Nu star	10.16	**Potential UCLs to Use**
AppChi2	4.039	95% KM (Chebyshev) UCL 9.641
95% Gamma Approximate UCL	5.096	
95% Adjusted Gamma UCL	5.17	

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	H:\JCV\Puritan\2007\EPCs\Groundwater\rev_leachate_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Methyl tert butyl ether											
10												
11						General Statistics						
12						Number of Valid Samples	23			Number of Detected Data		4
13						Number of Unique Samples	4			Number of Non-Detect Data		19
14										Percent Non-Detects		82.61%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.23			Minimum Detected		-1.47
18						Maximum Detected	0.505			Maximum Detected		-0.683
19						Mean of Detected	0.359			Mean of Detected		-1.068
20						SD of Detected	0.12			SD of Detected		0.342
21						Minimum Non-Detect	0.5			Minimum Non-Detect		-0.693
22						Maximum Non-Detect	0.5			Maximum Non-Detect		-0.693
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	0.982			Shapiro Wilk Test Statistic		0.988
28						5% Shapiro Wilk Critical Value	0.748			5% Shapiro Wilk Critical Value		0.748
29				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	0.269			Mean		-1.331
34						SD	0.0611			SD		0.176
35						95% DL/2 (t) UCL	0.291			95% H-Stat (DL/2) UCL		0.293
36												
37						Maximum Likelihood Estimate(MLE) Method	N/A			Robust ROS Method		
38										Mean in Log Scale		-1.195
39										SD in Log Scale		0.254
40										Mean in Original Scale		0.312
41										SD in Original Scale		0.0802
42										95% Percentile Bootstrap UCL		0.339
43										95% BCA Bootstrap UCL		0.341
44												
45				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
46						k star (bias corrected)	3.104			Data appear Normal at 5% Significance Level		
47						Theta Star	0.116					
48						nu star	24.83					
49												
50						A-D Test Statistic	0.211			Nonparametric Statistics		
51						5% A-D Critical Value	0.657			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	0.657			Mean		0.318
53						5% K-S Critical Value	0.395			SD		0.079

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	0.0455
55											95% KM (t) UCL	0.397
56	Assuming Gamma Distribution										95% KM (z) UCL	0.393
57	Gamma ROS Statistics using Extrapolated Data										95% KM (jackknife) UCL	0.416
58					Minimum	N/A					95% KM (bootstrap t) UCL	0.447
59					Maximum	N/A					95% KM (BCA) UCL	0.405
60					Mean	N/A					95% KM (percentile) UCL	0.409
61					Median	N/A					95% KM (Chebyshev) UCL	0.517
62					SD	N/A					97.5% KM (Chebyshev) UCL	0.603
63					k star	N/A					99% KM (Chebyshev) UCL	0.771
64					Theta star	N/A						
65					Nu star	N/A	Potential UCLs to Use					
66					AppChi2	N/A					95% KM (t) UCL	0.397
67					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.409
68					95% Adjusted Gamma UCL	N/A						
69												
70												
71	Xylene (Total)											
72												
73					General Statistics							
74					Number of Valid Samples	23					Number of Detected Data	6
75					Number of Unique Samples	6					Number of Non-Detect Data	17
76											Percent Non-Detects	73.91%
77												
78					Raw Statistics						Log-transformed Statistics	
79					Minimum Detected	0.2					Minimum Detected	-1.609
80					Maximum Detected	16.5					Maximum Detected	2.803
81					Mean of Detected	5.339					Mean of Detected	0.66
82					SD of Detected	6.581					SD of Detected	1.77
83					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
84					Maximum Non-Detect	1.5					Maximum Non-Detect	0.405
85												
86	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	20
87	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	3
88	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	86.96%
89												
90					UCL Statistics							
91	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
92					Shapiro Wilk Test Statistic	0.828					Shapiro Wilk Test Statistic	0.924
93					5% Shapiro Wilk Critical Value	0.788					5% Shapiro Wilk Critical Value	0.788
94	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
95												
96	Assuming Normal Distribution						Assuming Lognormal Distribution					
97					DL/2 Substitution Method						DL/2 Substitution Method	
98					Mean	1.643					Mean	-0.709
99					SD	3.862					SD	1.241
100					95% DL/2 (t) UCL	3.026					95% H-Stat (DL/2) UCL	1.695
101												
102					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
103					Mean	N/A					Mean in Log Scale	-1.544
104					SD	N/A					SD in Log Scale	1.973
105					95% MLE (t) UCL	N/A					Mean in Original Scale	1.538
106					95% MLE (Tiku) UCL	N/A					SD in Original Scale	3.899

	A	B	C	D	E	F	G	H	I	J	K	L
107											95% Percentile Bootstrap UCL	2.965
108											95% BCA Bootstrap UCL	3.502
109												
110				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
111					k star (bias corrected)	0.415				**Data appear Normal at 5% Significance Level**		
112					Theta Star	12.87						
113					nu star	4.979						
114												
115					A-D Test Statistic	0.349				**Nonparametric Statistics**		
116					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
117					K-S Test Statistic	0.729					Mean	1.547
118					5% K-S Critical Value	0.346					SD	3.807
119				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.87
120											95% KM (t) UCL	3.04
121				**Assuming Gamma Distribution**							95% KM (z) UCL	2.978
122					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.784
123					Minimum	N/A					95% KM (bootstrap t) UCL	5.584
124					Maximum	N/A					95% KM (BCA) UCL	5.07
125					Mean	N/A					95% KM (percentile) UCL	3.985
126					Median	N/A					95% KM (Chebyshev) UCL	5.338
127					SD	N/A					97.5% KM (Chebyshev) UCL	6.978
128					k star	N/A					99% KM (Chebyshev) UCL	10.2
129					Theta star	N/A						
130					Nu star	N/A				**Potential UCLs to Use**		
131					AppChi2	N/A					95% KM (t) UCL	3.04
132					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	3.985
133					95% Adjusted Gamma UCL	N/A						
134												
135												
136	**1,4-Dioxane**											
137												
138						**General Statistics**						
139					Number of Valid Samples	7					Number of Detected Data	4
140					Number of Unique Samples	4					Number of Non-Detect Data	3
141											Percent Non-Detects	42.86%
142												
143				**Raw Statistics**						**Log-transformed Statistics**		
144					Minimum Detected	6.7					Minimum Detected	1.902
145					Maximum Detected	53					Maximum Detected	3.97
146					Mean of Detected	22.18					Mean of Detected	2.79
147					SD of Detected	21.07					SD of Detected	0.884
148					Minimum Non-Detect	0.5					Minimum Non-Detect	-0.693
149					Maximum Non-Detect	0.56					Maximum Non-Detect	-0.58
150												
151	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	3
152	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
153	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	42.86%
154												
155						**UCL Statistics**						
156				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
157					Shapiro Wilk Test Statistic	0.817					Shapiro Wilk Test Statistic	0.964
158					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
159				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
162					DL/2 Substitution Method						DL/2 Substitution Method	
163					Mean	12.78					Mean	1.022
164					SD	18.95					SD	2.292
165					95% DL/2 (t) UCL	26.7					95% H-Stat (DL/2) UCL	7020
166												
167					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
168					Mean	4.298					Mean in Log Scale	1.665
169					SD	26.82					SD in Log Scale	1.536
170					95% MLE (t) UCL	24					Mean in Original Scale	13.18
171					95% MLE (Tiku) UCL	26.97					SD in Original Scale	18.65
172											95% Percentile Bootstrap UCL	25.79
173											95% BCA Bootstrap UCL	29.6
174												
175	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
176					k star (bias corrected)	0.609	**Data appear Normal at 5% Significance Level**					
177					Theta Star	36.44						
178					nu star	4.868						
179												
180					A-D Test Statistic	0.33	**Nonparametric Statistics**					
181					5% A-D Critical Value	0.661					Kaplan-Meier (KM) Method	
182					K-S Test Statistic	0.661					Mean	15.54
183					5% K-S Critical Value	0.399					SD	15.78
184	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	6.886
185											95% KM (t) UCL	28.92
186	**Assuming Gamma Distribution**										95% KM (z) UCL	26.87
187					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	27.48
188					Minimum	0					95% KM (bootstrap t) UCL	42.56
189					Maximum	53					95% KM (BCA) UCL	33.16
190					Mean	12.67					95% KM (percentile) UCL	29
191					Median	6.7					95% KM (Chebyshev) UCL	45.56
192					SD	19.04					97.5% KM (Chebyshev) UCL	58.54
193					k star	0.143					99% KM (Chebyshev) UCL	84.06
194					Theta star	88.33						
195					Nu star	2.008	**Potential UCLs to Use**					
196					AppChi2	0.152					95% KM (t) UCL	28.92
197					95% Gamma Approximate UCL	167.6					95% KM (Percentile Bootstrap) UCL	29
198					95% Adjusted Gamma UCL	N/A						
199												
200												
201	**2-Methylnaphthalene**											
202												
203					**General Statistics**							
204					Number of Valid Samples	23					Number of Detected Data	5
205					Number of Unique Samples	5					Number of Non-Detect Data	18
206											Percent Non-Detects	78.26%
207												
208					**Raw Statistics**						**Log-transformed Statistics**	
209					Minimum Detected	0.027					Minimum Detected	-3.612
210					Maximum Detected	1.9					Maximum Detected	0.642
211					Mean of Detected	0.835					Mean of Detected	-0.958
212					SD of Detected	0.774					SD of Detected	1.769

	A	B	C	D	E	F	G	H	I	J	K	L
213					Minimum Non-Detect	0.01					Minimum Non-Detect	-4.605
214					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
215												
216	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	19
217	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
218	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.61%
219												
220					**UCL Statistics**							
221				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
222					Shapiro Wilk Test Statistic	0.938					Shapiro Wilk Test Statistic	0.886
223					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
224				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
225												
226				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
227					DL/2 Substitution Method						DL/2 Substitution Method	
228					Mean	0.211					Mean	-3.041
229					SD	0.472					SD	1.63
230					95% DL/2 (t) UCL	0.38					95% H-Stat (DL/2) UCL	0.412
231												
232					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
233					Mean	-1.424					Mean in Log Scale	-5.896
234					SD	1.644					SD in Log Scale	3.509
235					95% MLE (t) UCL	-0.836					Mean in Original Scale	0.186
236					95% MLE (Tiku) UCL	0.154					SD in Original Scale	0.481
237											95% Percentile Bootstrap UCL	0.352
238											95% BCA Bootstrap UCL	0.426
239												
240				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
241					k star (bias corrected)	0.44				**Data appear Normal at 5% Significance Level**		
242					Theta Star	1.898						
243					nu star	4.401						
244												
245					A-D Test Statistic	0.333				**Nonparametric Statistics**		
246					5% A-D Critical Value	0.698					Kaplan-Meier (KM) Method	
247					K-S Test Statistic	0.698					Mean	0.203
248					5% K-S Critical Value	0.367					SD	0.464
249				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.108
250											95% KM (t) UCL	0.388
251				**Assuming Gamma Distribution**							95% KM (z) UCL	0.381
252					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.353
253					Minimum	0					95% KM (bootstrap t) UCL	0.417
254					Maximum	1.9					95% KM (BCA) UCL	1.261
255					Mean	0.193					95% KM (percentile) UCL	1
256					Median	0					95% KM (Chebyshev) UCL	0.674
257					SD	0.48					97.5% KM (Chebyshev) UCL	0.878
258					k star	0.0826					99% KM (Chebyshev) UCL	1.279
259					Theta star	2.34						
260					Nu star	3.801				**Potential UCLs to Use**		
261					AppChi2	0.645					95% KM (t) UCL	0.388
262					95% Gamma Approximate UCL	1.14					95% KM (Percentile Bootstrap) UCL	1
263					95% Adjusted Gamma UCL	1.31						
264												
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	cis-1,2-Dichloroethene											
267												
268					General Statistics							
269					Number of Valid Samples	23				Number of Detected Data		4
270					Number of Unique Samples	4				Number of Non-Detect Data		19
271										Percent Non-Detects		82.61%
272												
273				Raw Statistics						Log-transformed Statistics		
274					Minimum Detected	0.43				Minimum Detected		-0.844
275					Maximum Detected	0.89				Maximum Detected		-0.117
276					Mean of Detected	0.685				Mean of Detected		-0.411
277					SD of Detected	0.19				SD of Detected		0.308
278					Minimum Non-Detect	0.5				Minimum Non-Detect		-0.693
279					Maximum Non-Detect	0.5				Maximum Non-Detect		-0.693
280												
281												
282					UCL Statistics							
283				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
284					Shapiro Wilk Test Statistic	0.941				Shapiro Wilk Test Statistic		0.897
285					5% Shapiro Wilk Critical Value	0.748				5% Shapiro Wilk Critical Value		0.748
286				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
287												
288				Assuming Normal Distribution						Assuming Lognormal Distribution		
289					DL/2 Substitution Method					DL/2 Substitution Method		
290					Mean	0.326				Mean		-1.217
291					SD	0.183				SD		0.395
292					95% DL/2 (t) UCL	0.391				95% H-Stat (DL/2) UCL		0.356
293												
294					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
295					Mean	0.33				Mean in Log Scale		-0.793
296					SD	0.355				SD in Log Scale		0.314
297					95% MLE (t) UCL	0.457				Mean in Original Scale		0.475
298					95% MLE (Tiku) UCL	0.661				SD in Original Scale		0.155
299										95% Percentile Bootstrap UCL		0.53
300										95% BCA Bootstrap UCL		0.531
301												
302				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
303					k star (bias corrected)	3.986				Data appear Normal at 5% Significance Level		
304					Theta Star	0.172						
305					nu star	31.89						
306												
307					A-D Test Statistic	0.375				Nonparametric Statistics		
308					5% A-D Critical Value	0.657				Kaplan-Meier (KM) Method		
309					K-S Test Statistic	0.657				Mean		0.474
310					5% K-S Critical Value	0.395				SD		0.119
311				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		0.0285
312										95% KM (t) UCL		0.523
313				Assuming Gamma Distribution						95% KM (z) UCL		0.521
314					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.64
315					Minimum	N/A				95% KM (bootstrap t) UCL		0.504
316					Maximum	N/A				95% KM (BCA) UCL		0.89
317					Mean	N/A				95% KM (percentile) UCL		0.735
318					Median	N/A				95% KM (Chebyshev) UCL		0.599

	A	B	C	D	E	F	G	H	I	J	K	L
319					SD	N/A				97.5% KM (Chebyshev) UCL		0.653
320					k star	N/A				99% KM (Chebyshev) UCL		0.758
321					Theta star	N/A						
322					Nu star	N/A			**Potential UCLs to Use**			
323					AppChi2	N/A				95% KM (t) UCL		0.523
324				95% Gamma Approximate UCL		N/A				95% KM (Percentile Bootstrap) UCL		0.735
325				95% Adjusted Gamma UCL		N/A						
326												
327												
328	**Isopropylbenzene**											
329												
330					**General Statistics**							
331					Number of Valid Samples	23				Number of Detected Data		9
332					Number of Unique Samples	9				Number of Non-Detect Data		14
333										Percent Non-Detects		60.87%
334												
335				**Raw Statistics**					**Log-transformed Statistics**			
336					Minimum Detected	0.24				Minimum Detected		-1.427
337					Maximum Detected	8.5				Maximum Detected		2.14
338					Mean of Detected	3.31				Mean of Detected		0.497
339					SD of Detected	3.606				SD of Detected		1.333
340					Minimum Non-Detect	0.5				Minimum Non-Detect		-0.693
341					Maximum Non-Detect	0.5				Maximum Non-Detect		-0.693
342												
343												
344					**UCL Statistics**							
345				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
346					Shapiro Wilk Test Statistic	0.749				Shapiro Wilk Test Statistic		0.891
347					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
348				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
349												
350				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
351					DL/2 Substitution Method					DL/2 Substitution Method		
352					Mean	1.447				Mean		-0.649
353					SD	2.657				SD		1.237
354					95% DL/2 (t) UCL	2.399				95% H-Stat (DL/2) UCL		1.541
355												
356					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
357					Mean	-1.84				Mean in Log Scale		-1.131
358					SD	5.418				SD in Log Scale		1.791
359					95% MLE (t) UCL	0.0996				Mean in Original Scale		1.407
360					95% MLE (Tiku) UCL	1.209				SD in Original Scale		2.679
361										95% Percentile Bootstrap UCL		2.375
362										95% BCA Bootstrap UCL		2.614
363												
364				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
365					k star (bias corrected)	0.635			**Data appear Gamma Distributed at 5% Significance Level**			
366					Theta Star	5.21						
367					nu star	11.44						
368												
369					A-D Test Statistic	0.685			**Nonparametric Statistics**			
370					5% A-D Critical Value	0.749				Kaplan-Meier (KM) Method		
371					K-S Test Statistic	0.749				Mean		1.441

	A	B	C	D	E	F	G	H	I	J	K	L
372					5% K-S Critical Value	0.288					SD	2.602
373				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	0.575
374											95% KM (t) UCL	2.429
375				Assuming Gamma Distribution							95% KM (z) UCL	2.388
376				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	2.297
377					Minimum	0					95% KM (bootstrap t) UCL	2.813
378					Maximum	8.5					95% KM (BCA) UCL	2.8
379					Mean	1.291					95% KM (percentile) UCL	2.482
380					Median	0					95% KM (Chebyshev) UCL	3.949
381					SD	2.733					97.5% KM (Chebyshev) UCL	5.035
382					k star	0.0872					99% KM (Chebyshev) UCL	7.166
383					Theta star	14.8						
384					Nu star	4.013				Potential UCLs to Use		
385					AppChi2	0.727					95% KM (t) UCL	2.429
386					95% Gamma Approximate UCL	7.129						
387					95% Adjusted Gamma UCL	8.154						
388												
389												
390	Aroclor-1242											
391												
392						General Statistics						
393					Number of Valid Samples	23					Number of Detected Data	1
394					Number of Unique Samples	1					Number of Non-Detect Data	22
395											Percent Non-Detects	95.65%
396												
397				Raw Statistics						Log-transformed Statistics		
398					Minimum Detected	0.33					Minimum Detected	-1.109
399					Maximum Detected	0.33					Maximum Detected	-1.109
400					Mean of Detected	0.33					Mean of Detected	-1.109
401					SD of Detected	N/A					SD of Detected	N/A
402					Minimum Non-Detect	0.05					Minimum Non-Detect	-2.996
403					Maximum Non-Detect	0.22					Maximum Non-Detect	-1.514
404												
405	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	22
406	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
407	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	95.65%
408												
409						UCL Statistics						
410				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
411					Shapiro Wilk Test Statistic	N/A					Shapiro Wilk Test Statistic	N/A
412					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
413				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
414												
415				Assuming Normal Distribution						Assuming Lognormal Distribution		
416					DL/2 Substitution Method						DL/2 Substitution Method	
417					Mean	0.0589					Mean	-3.205
418					SD	0.0689					SD	0.783
419					95% DL/2 (t) UCL	0.0836					95% H-Stat (DL/2) UCL	0.0781
420												
421					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
422											Mean in Log Scale	N/A
423											SD in Log Scale	N/A
424											Mean in Original Scale	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
425											SD in Original Scale	N/A
426											95% Percentile Bootstrap UCL	N/A
427											95% BCA Bootstrap UCL	N/A
428												
429	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
430	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
431												
432												
433	**Potential UCLs to Use**						**Nonparametric Statistics**					
434					99% KM (Chebyshev) UCL	0.33					Kaplan-Meier (KM) Method	
435											Mean	0.33
436											SD	0
437											SE of Mean	0
438											95% KM (t) UCL	0.33
439											95% KM (z) UCL	0.33
440											95% KM (jackknife) UCL	6860
441											95% KM (bootstrap t) UCL	N/A
442											95% KM (BCA) UCL	1E+31
443											95% KM (percentile) UCL	1E+31
444											95% KM (Chebyshev) UCL	0.33
445											97.5% KM (Chebyshev) UCL	0.33
446											99% KM (Chebyshev) UCL	0.33
447												
448												
449	**Aroclor-1248**											
450												
451	**General Statistics**											
452					Number of Valid Samples	23					Number of Detected Data	1
453					Number of Unique Samples	1					Number of Non-Detect Data	22
454											Percent Non-Detects	95.65%
455												
456	**Raw Statistics**						**Log-transformed Statistics**					
457					Minimum Detected	0.18					Minimum Detected	-1.715
458					Maximum Detected	0.18					Maximum Detected	-1.715
459					Mean of Detected	0.18					Mean of Detected	-1.715
460					SD of Detected	N/A					SD of Detected	N/A
461					Minimum Non-Detect	0.05					Minimum Non-Detect	-2.996
462					Maximum Non-Detect	0.22					Maximum Non-Detect	-1.514
463												
464	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	23
465	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
466	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
467												
468	**UCL Statistics**											
469	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
470					Shapiro Wilk Test Statistic	N/A					Shapiro Wilk Test Statistic	N/A
471					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
472	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
473												
474	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
475					DL/2 Substitution Method						DL/2 Substitution Method	
476					Mean	0.0557					Mean	-3.171
477					SD	0.0456					SD	0.734

	A	B	C	D	E	F	G	H	I	J	K	L
478					95% DL/2 (t) UCL	0.072				95% H-Stat (DL/2) UCL		0.0782
479												
480				Maximum Likelihood Estimate(MLE) Method		N/A				Robust ROS Method		
481										Mean in Log Scale		N/A
482										SD in Log Scale		N/A
483										Mean in Original Scale		N/A
484										SD in Original Scale		N/A
485										95% Percentile Bootstrap UCL		N/A
486										95% BCA Bootstrap UCL		N/A
487												
488				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
489				Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)		
490												
491												
492				**Potential UCLs to Use**						**Nonparametric Statistics**		
493				99% KM (Chebyshev) UCL		0.18				Kaplan-Meier (KM) Method		
494										Mean		0.18
495										SD		0
496										SE of Mean		0
497										95% KM (t) UCL		0.18
498										95% KM (z) UCL		0.18
499										95% KM (jackknife) UCL		6860
500										95% KM (bootstrap t) UCL		N/A
501										95% KM (BCA) UCL		1E+31
502										95% KM (percentile) UCL		1E+31
503										95% KM (Chebyshev) UCL		0.18
504										97.5% KM (Chebyshev) UCL		0.18
505										99% KM (Chebyshev) UCL		0.18
506												
507												
508	**Lead**											
509												
510						**General Statistics**						
511				Number of Valid Samples		23				Number of Detected Data		9
512				Number of Unique Samples		9				Number of Non-Detect Data		14
513										Percent Non-Detects		60.87%
514												
515				**Raw Statistics**						**Log-transformed Statistics**		
516				Minimum Detected		0.27				Minimum Detected		-1.309
517				Maximum Detected		1.5				Maximum Detected		0.405
518				Mean of Detected		0.803				Mean of Detected		-0.383
519				SD of Detected		0.437				SD of Detected		0.644
520				Minimum Non-Detect		0.7				Minimum Non-Detect		-0.357
521				Maximum Non-Detect		3				Maximum Non-Detect		1.099
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		23
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		0
525	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
526												
527						**UCL Statistics**						
528				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
529				Shapiro Wilk Test Statistic		0.938				Shapiro Wilk Test Statistic		0.9
530				5% Shapiro Wilk Critical Value		0.829				5% Shapiro Wilk Critical Value		0.829

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
532												
533	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
534					DL/2 Substitution Method						DL/2 Substitution Method	
535					Mean	0.927					Mean	-0.283
536					SD	0.535					SD	0.698
537					95% DL/2 (t) UCL	1.119					95% H-Stat (DL/2) UCL	1.421
538												
539					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
540											Mean in Log Scale	-0.628
541											SD in Log Scale	0.589
542											Mean in Original Scale	0.629
543											SD in Original Scale	0.373
544											95% Percentile Bootstrap UCL	0.761
545											95% BCA Bootstrap UCL	0.775
546												
547	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
548					k star (bias corrected)	2.215	**Data appear Normal at 5% Significance Level**					
549					Theta Star	0.363						
550					nu star	39.87						
551												
552					A-D Test Statistic	0.375	**Nonparametric Statistics**					
553					5% A-D Critical Value	0.726					Kaplan-Meier (KM) Method	
554					K-S Test Statistic	0.726					Mean	0.639
555					5% K-S Critical Value	0.281					SD	0.388
556	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.113
557											95% KM (t) UCL	0.833
558	**Assuming Gamma Distribution**										95% KM (z) UCL	0.825
559					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.839
560					Minimum	N/A					95% KM (bootstrap t) UCL	0.853
561					Maximum	N/A					95% KM (BCA) UCL	0.843
562					Mean	N/A					95% KM (percentile) UCL	0.845
563					Median	N/A					95% KM (Chebyshev) UCL	1.131
564					SD	N/A					97.5% KM (Chebyshev) UCL	1.344
565					k star	N/A					99% KM (Chebyshev) UCL	1.763
566					Theta star	N/A						
567					Nu star	N/A	**Potential UCLs to Use**					
568					AppChi2	N/A					95% KM (t) UCL	0.833
569					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.845
570					95% Adjusted Gamma UCL	N/A						
571												

Data File		Variable:	Benzene
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	18	Shapiro-Wilk Test Statisitic	0.286859
Number of Unique Samples	4	Shapiro-Wilk 5% Critical Value	0.897
Minimum	0.25	Data not normal at 5% significance level	
Maximum	19		
Mean	1.392778	95% UCL (Assuming Normal Distribution)	
Median	0.25	Student's-t UCL	3.201524
Standard Deviation	4.411262		
Variance	19.45923	Gamma Distribution Test	
Coefficient of Variation	3.16724	A-D Test Statistic	5.584441
Skewness	4.190248	A-D 5% Critical Value	0.804569
		K-S Test Statistic	0.494149
Gamma Statistics		K-S 5% Critical Value	0.215703
k hat	0.47883	Data do not follow gamma distribution	
k star (bias corrected)	0.436062	at 5% significance level	
Theta hat	2.908709		
Theta star	3.193989	95% UCLs (Assuming Gamma Distribution)	
nu hat	17.23789	Approximate Gamma UCL	2.821735
nu star	15.69824	Adjusted Gamma UCL	3.029719
Approx.Chi Square Value (.05)	7.748481		
Adjusted Level of Significance	0.03574	Lognormal Distribution Test	
Adjusted Chi Square Value	7.216564	Shapiro-Wilk Test Statisitic	0.412369
		Shapiro-Wilk 5% Critical Value	0.897
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-1.386294		
Maximum of log data	2.944439	95% UCLs (Assuming Lognormal Distribution)	
Mean of log data	-1.004201	95% H-UCL	1.412645
Standard Deviation of log data	1.098391	95% Chebyshev (MVUE) UCL	1.446447
Variance of log data	1.206463	97.5% Chebyshev (MVUE) UCL	1.796543
		99% Chebyshev (MVUE) UCL	2.484241
		95% Non-parametric UCLs	
		CLT UCL	3.103005
		Adj-CLT UCL (Adjusted for skewness)	4.200267
		Mod-t UCL (Adjusted for skewness)	3.372675
		Jackknife UCL	3.201524
		Standard Bootstrap UCL	N/R
		Bootstrap-t UCL	N/R
RECOMMENDATION		Hall's Bootstrap UCL	N/R
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	N/R
		BCA Bootstrap UCL	N/R
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	5.924919
		97.5% Chebyshev (Mean, Sd) UCL	7.88598
		99% Chebyshev (Mean, Sd) UCL	11.7381

Data File					Variable:	Chloroform	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			18	Shapiro-Wilk Test Statisitic			0.375806
Number of Unique Samples			3	Shapiro-Wilk 5% Critical Value			0.897
Minimum			0.25	Data not normal at 5% significance level			
Maximum			2.5				
Mean			0.494444	95% UCL (Assuming Normal Distribution)			
Median			0.25	Student's-t UCL			0.786239
Standard Deviation			0.711645				
Variance			0.506438	Gamma Distribution Test			
Coefficient of Variation			1.439281	A-D Test Statistic			5.907086
Skewness			2.708817	A-D 5% Critical Value			0.76021
				K-S Test Statistic			0.541919
Gamma Statistics				K-S 5% Critical Value			0.208076
k hat			1.308709	Data do not follow gamma distribution			
k star (bias corrected)			1.127628	at 5% significance level			
Theta hat			0.377811				
Theta star			0.438482	95% UCLs (Assuming Gamma Distribution)			
nu hat			47.11353	Approximate Gamma UCL			0.74362
nu star			40.59461	Adjusted Gamma UCL			0.774118
Approx.Chi Square Value (.05)			26.992				
Adjusted Level of Significance			0.03574	Lognormal Distribution Test			
Adjusted Chi Square Value			25.92858	Shapiro-Wilk Test Statisitic			0.373924
				Shapiro-Wilk 5% Critical Value			0.897
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			-1.386294				
Maximum of log data			0.916291	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			-1.132719	95% H-UCL			0.63795
Standard Deviation of log data			0.738045	95% Chebyshev (MVUE) UCL			0.751652
Variance of log data			0.54471	97.5% Chebyshev (MVUE) UCL			0.897212
				99% Chebyshev (MVUE) UCL			1.183137
				95% Non-parametric UCLs			
				CLT UCL			0.770346
				Adj-CLT UCL (Adjusted for skewness)			0.884779
				Mod-t UCL (Adjusted for skewness)			0.804089
				Jackknife UCL			0.786239
				Standard Bootstrap UCL			N/R
				Bootstrap-t UCL			N/R
RECOMMENDATION				Hall's Bootstrap UCL			N/R
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			N/R
				BCA Bootstrap UCL			N/R
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			1.22559
				97.5% Chebyshev (Mean, Sd) UCL			1.541957
				99% Chebyshev (Mean, Sd) UCL			2.163399

Data File					Variable:	Vinyl Chloride	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			18	Shapiro-Wilk Test Statisitic			0.383706
Number of Unique Samples			4	Shapiro-Wilk 5% Critical Value			0.897
Minimum			0.25	Data not normal at 5% significance level			
Maximum			2.5				
Mean			0.427222	95% UCL (Assuming Normal Distribution)			
Median			0.25	Student's-t UCL			0.648985
Standard Deviation			0.540847				
Variance			0.292515	Gamma Distribution Test			
Coefficient of Variation			1.265962	A-D Test Statistic			4.6972
Skewness			3.723597	A-D 5% Critical Value			0.753641
				K-S Test Statistic			0.494397
Gamma Statistics				K-S 5% Critical Value			0.206574
k hat			1.860315	Data do not follow gamma distribution			
k star (bias corrected)			1.5873	at 5% significance level			
Theta hat			0.22965				
Theta star			0.26915	95% UCLs (Assuming Gamma Distribution)			
nu hat			66.97134	Approximate Gamma UCL			0.598883
nu star			57.14278	Adjusted Gamma UCL			0.619036
Approx.Chi Square Value (.05)			40.76364				
Adjusted Level of Significance			0.03574	Lognormal Distribution Test			
Adjusted Chi Square Value			39.43659	Shapiro-Wilk Test Statisitic			0.469314
				Shapiro-Wilk 5% Critical Value			0.897
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			-1.386294				
Maximum of log data			0.916291	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			-1.142682	95% H-UCL			0.532316
Standard Deviation of log data			0.616851	95% Chebyshev (MVUE) UCL			0.634774
Variance of log data			0.380505	97.5% Chebyshev (MVUE) UCL			0.744534
				99% Chebyshev (MVUE) UCL			0.960136
				95% Non-parametric UCLs			
				CLT UCL			0.636906
				Adj-CLT UCL (Adjusted for skewness)			0.756455
				Mod-t UCL (Adjusted for skewness)			0.667632
				Jackknife UCL			0.648985
				Standard Bootstrap UCL			N/R
				Bootstrap-t UCL			N/R
RECOMMENDATION				Hall's Bootstrap UCL			N/R
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			N/R
				BCA Bootstrap UCL			N/R
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			0.98289
				97.5% Chebyshev (Mean, Sd) UCL			1.223327
				99% Chebyshev (Mean, Sd) UCL			1.695621

Data File					Variable:	2-Methylnaphthalene	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			24	Shapiro-Wilk Test Statisitic			0.559093
Number of Unique Samples			18	Shapiro-Wilk 5% Critical Value			0.916
Minimum			58	Data not normal at 5% significance level			
Maximum			900				
Mean			164.0417	95% UCL (Assuming Normal Distribution)			
Median			100	Student's-t UCL			226.6783
Standard Deviation			179.0423				
Variance			32056.13	Gamma Distribution Test			
Coefficient of Variation			1.091444	A-D Test Statistic			1.508131
Skewness			3.433813	A-D 5% Critical Value			0.756297
				K-S Test Statistic			0.19279
Gamma Statistics				K-S 5% Critical Value			0.180387
k hat			1.904542	Data do not follow gamma distribution			
k star (bias corrected)			1.694252	at 5% significance level			
Theta hat			86.13181				
Theta star			96.82246	95% UCLs (Assuming Gamma Distribution)			
nu hat			91.41803	Approximate Gamma UCL			216.7789
nu star			81.32411	Adjusted Gamma UCL			221.1276
Approx.Chi Square Value (.05)			61.53986				
Adjusted Level of Significance			0.0392	Lognormal Distribution Test			
Adjusted Chi Square Value			60.3296	Shapiro-Wilk Test Statisitic			0.879245
				Shapiro-Wilk 5% Critical Value			0.916
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			4.060443				
Maximum of log data			6.802395	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			4.815183	95% H-UCL			209.489
Standard Deviation of log data			0.675608	95% Chebyshev (MVUE) UCL			251.7769
Variance of log data			0.456446	97.5% Chebyshev (MVUE) UCL			294.4128
				99% Chebyshev (MVUE) UCL			378.1626
				95% Non-parametric UCLs			
				CLT UCL			224.1559
				Adj-CLT UCL (Adjusted for skewness)			251.5276
				Mod-t UCL (Adjusted for skewness)			230.9477
				Jackknife UCL			226.6783
				Standard Bootstrap UCL			223.0367
				Bootstrap-t UCL			340.8053
RECOMMENDATION				Hall's Bootstrap UCL			506.7256
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			230.75
				BCA Bootstrap UCL			276.125
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			323.3457
				97.5% Chebyshev (Mean, Sd) UCL			392.2767
				99% Chebyshev (Mean, Sd) UCL			527.6782

Data File					Variable:	Acetophenone	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.313797
Number of Unique Samples			17	Shapiro-Wilk 5% Critical Value			0.935
Minimum			70	Data not normal at 5% significance level			
Maximum			2100				
Mean			211.875	95% UCL (Assuming Normal Distribution)			
Median			190	Student's-t UCL			304.6884
Standard Deviation			329.5984				
Variance			108635.1	Gamma Distribution Test			
Coefficient of Variation			1.555627	A-D Test Statistic			4.065456
Skewness			5.661146	A-D 5% Critical Value			0.763452
				K-S Test Statistic			0.291611
Gamma Statistics				K-S 5% Critical Value			0.14923
k hat			1.716607	Data do not follow gamma distribution			
k star (bias corrected)			1.592075	at 5% significance level			
Theta hat			123.4266				
Theta star			133.0811	95% UCLs (Assuming Gamma Distribution)			
nu hat			123.5957	Approximate Gamma UCL			267.1635
nu star			114.6294	Adjusted Gamma UCL			270.0112
Approx.Chi Square Value (.05)			90.90725				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			89.94848	Shapiro-Wilk Test Statisitic			0.750457
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			4.248495				
Maximum of log data			7.649693	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			5.037285	95% H-UCL			238.4434
Standard Deviation of log data			0.651623	95% Chebyshev (MVUE) UCL			285.5217
Variance of log data			0.424613	97.5% Chebyshev (MVUE) UCL			327.2203
				99% Chebyshev (MVUE) UCL			409.1292
				95% Non-parametric UCLs			
				CLT UCL			302.2319
				Adj-CLT UCL (Adjusted for skewness)			357.6137
				Mod-t UCL (Adjusted for skewness)			313.3268
				Jackknife UCL			304.6884
				Standard Bootstrap UCL			301.2629
				Bootstrap-t UCL			549.7804
RECOMMENDATION				Hall's Bootstrap UCL			695.2339
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			319.1667
				BCA Bootstrap UCL			413.3333
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			451.3227
				97.5% Chebyshev (Mean, Sd) UCL			554.9319
				99% Chebyshev (Mean, Sd) UCL			758.4522

Data File					Variable:	Aroclor-1254	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.436299
Number of Unique Samples			25	Shapiro-Wilk 5% Critical Value			0.935
Minimum			7	Data not normal at 5% significance level			
Maximum			1000				
Mean			82.91667	95% UCL (Assuming Normal Distribution)			
Median			21	Student's-t UCL			133.2886
Standard Deviation			178.8806				
Variance			31998.28	Gamma Distribution Test			
Coefficient of Variation			2.157354	A-D Test Statistic			3.041431
Skewness			4.335918	A-D 5% Critical Value			0.796287
				K-S Test Statistic			0.271764
Gamma Statistics				K-S 5% Critical Value			0.153512
k hat			0.664908	Data do not follow gamma distribution			
k star (bias corrected)			0.628017	at 5% significance level			
Theta hat			124.7041				
Theta star			132.0293	95% UCLs (Assuming Gamma Distribution)			
nu hat			47.87334	Approximate Gamma UCL			121.7723
nu star			45.21723	Adjusted Gamma UCL			123.9525
Approx.Chi Square Value (.05)			30.78912				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			30.24756	Shapiro-Wilk Test Statisitic			0.892471
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			1.94591				
Maximum of log data			6.907755	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			3.502308	95% H-UCL			115.6038
Standard Deviation of log data			1.196671	95% Chebyshev (MVUE) UCL			134.9878
Variance of log data			1.432022	97.5% Chebyshev (MVUE) UCL			164.9454
				99% Chebyshev (MVUE) UCL			223.7913
				95% Non-parametric UCLs			
				CLT UCL			131.9554
				Adj-CLT UCL (Adjusted for skewness)			154.9763
				Mod-t UCL (Adjusted for skewness)			136.8794
				Jackknife UCL			133.2886
				Standard Bootstrap UCL			133.4321
				Bootstrap-t UCL			238.504
RECOMMENDATION				Hall's Bootstrap UCL			299.6958
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			138.4861
				BCA Bootstrap UCL			132.3472
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			212.8704
				97.5% Chebyshev (Mean, Sd) UCL			269.1015
				99% Chebyshev (Mean, Sd) UCL			379.5566

Data File					Variable:	Aroclor-1260	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.810177
Number of Unique Samples			24	Shapiro-Wilk 5% Critical Value			0.935
Minimum			7	Data not normal at 5% significance level			
Maximum			550				
Mean			171.3889	95% UCL (Assuming Normal Distribution)			
Median			92.5	Student's-t UCL			221.984
Standard Deviation			179.673				
Variance			32282.4	Gamma Distribution Test			
Coefficient of Variation			1.048335	A-D Test Statistic			1.712361
Skewness			0.728877	A-D 5% Critical Value			0.792653
				K-S Test Statistic			0.226914
Gamma Statistics				K-S 5% Critical Value			0.153126
k hat			0.702061	Data do not follow gamma distribution			
k star (bias corrected)			0.662075	at 5% significance level			
Theta hat			244.1223				
Theta star			258.8663	95% UCLs (Assuming Gamma Distribution)			
nu hat			50.54843	Approximate Gamma UCL			248.9287
nu star			47.66939	Adjusted Gamma UCL			253.2528
Approx.Chi Square Value (.05)			32.82066				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			32.26028	Shapiro-Wilk Test Statisitic			0.866497
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			1.94591				
Maximum of log data			6.309918	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			4.283475	95% H-UCL			493.2437
Standard Deviation of log data			1.510484	95% Chebyshev (MVUE) UCL			514.7043
Variance of log data			2.28156	97.5% Chebyshev (MVUE) UCL			645.2226
				99% Chebyshev (MVUE) UCL			901.6005
				95% Non-parametric UCLs			
				CLT UCL			220.6449
				Adj-CLT UCL (Adjusted for skewness)			224.5319
				Mod-t UCL (Adjusted for skewness)			222.5903
				Jackknife UCL			221.984
				Standard Bootstrap UCL			218.1004
				Bootstrap-t UCL			224.9549
RECOMMENDATION				Hall's Bootstrap UCL			223.9212
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			218.9306
				BCA Bootstrap UCL			244
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			301.9183
				97.5% Chebyshev (Mean, Sd) UCL			358.3985
				99% Chebyshev (Mean, Sd) UCL			469.3429

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2			User Selected Options									
3			From File	H:\projects\Peterson Puritan\Copy of Nunes soil benzene.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	conc											
10												
11						General Statistics						
12						Number of Valid Samples	36			Number of Detected Data		3
13						Number of Unique Samples	2			Number of Non-Detect Data		33
14										Percent Non-Detects		91.67%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	1			Minimum Detected		0
18						Maximum Detected	310			Maximum Detected		5.737
19						Mean of Detected	104			Mean of Detected		1.912
20						SD of Detected	178.4			SD of Detected		3.312
21						Minimum Non-Detect	1.1			Minimum Non-Detect		0.0953
22						Maximum Non-Detect	13000			Maximum Non-Detect		9.473
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		36
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		0
26	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.75			Shapiro Wilk Test Statistic		0.75
31						5% Shapiro Wilk Critical Value	0.767			5% Shapiro Wilk Critical Value		0.767
32				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
33												
34				Assuming Normal Distribution						Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	195.6			Mean		1.512
37						SD	1082			SD		1.863
38						95% DL/2 (t) UCL	500.3			95% H-Stat (DL/2) UCL		82.29
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Robust ROS Method		
41										Mean in Log Scale		0.326
42										SD in Log Scale		1.43
43										Mean in Original Scale		10.62
44										SD in Original Scale		51.37
45										95% Percentile Bootstrap UCL		27.72
46										95% BCA Bootstrap UCL		36.68
47												

	A	B	C	D	E	F	G	H	I	J	K	L
48	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
49					k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**					
50					Theta Star	N/A						
51					nu star	N/A						
52												
53					A-D Test Statistic	0.589	**Nonparametric Statistics**					
54					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
55					K-S Test Statistic	N/A				Mean		9.829
56					5% K-S Critical Value	N/A				SD		51.48
57	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		10.66
58										95% KM (t) UCL		27.83
59			**Assuming Gamma Distribution**							95% KM (z) UCL		27.36
60					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		24.75
61					Minimum	N/A				95% KM (bootstrap t) UCL		#NUM!
62					Maximum	N/A				95% KM (BCA) UCL		1E+31
63					Mean	N/A				95% KM (percentile) UCL		310
64					Median	N/A				95% KM (Chebyshev) UCL		56.28
65					SD	N/A				97.5% KM (Chebyshev) UCL		76.38
66					k star	N/A				99% KM (Chebyshev) UCL		115.9
67					Theta star	N/A						
68					Nu star	N/A				**Potential UCLs to Use**		
69					AppChi2	N/A				99% KM (Chebyshev) UCL		115.9
70					95% Gamma Approximate UCL	N/A						
71					95% Adjusted Gamma UCL	N/A						
72												

Data File					Variable:	Carbon disulfide	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.226842
Number of Unique Samples			19	Shapiro-Wilk 5% Critical Value			0.935
Minimum			0.55	Data not normal at 5% significance level			
Maximum			650				
Mean			25.37778	95% UCL (Assuming Normal Distribution)			
Median			5	Student's-t UCL			55.71865
Standard Deviation			107.7464				
Variance			11609.28	Gamma Distribution Test			
Coefficient of Variation			4.245697	A-D Test Statistic			5.363731
Skewness			5.887074	A-D 5% Critical Value			0.841251
				K-S Test Statistic			0.396439
Gamma Statistics				K-S 5% Critical Value			0.157907
k hat			0.369762	Data do not follow gamma distribution			
k star (bias corrected)			0.357467	at 5% significance level			
Theta hat			68.63279				
Theta star			70.99339	95% UCLs (Assuming Gamma Distribution)			
nu hat			26.62284	Approximate Gamma UCL			43.0402
nu star			25.73761	Adjusted Gamma UCL			44.11341
Approx.Chi Square Value (.05)			15.17566				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			14.80646	Shapiro-Wilk Test Statisitic			0.854075
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			-0.597837				
Maximum of log data			6.476972	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			1.431476	95% H-UCL			26.38925
Standard Deviation of log data			1.478122	95% Chebyshev (MVUE) UCL			27.96461
Variance of log data			2.184846	97.5% Chebyshev (MVUE) UCL			34.97442
				99% Chebyshev (MVUE) UCL			48.74383
				95% Non-parametric UCLs			
				CLT UCL			54.91561
				Adj-CLT UCL (Adjusted for skewness)			73.74257
				Mod-t UCL (Adjusted for skewness)			58.65528
				Jackknife UCL			55.71865
				Standard Bootstrap UCL			53.81662
				Bootstrap-t UCL			326.8685
RECOMMENDATION				Hall's Bootstrap UCL			246.6846
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			60.73472
				BCA Bootstrap UCL			80.24028
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			103.6537
				97.5% Chebyshev (Mean, Sd) UCL			137.5238
				99% Chebyshev (Mean, Sd) UCL			204.0549

Data File					Variable:	Naphthalene	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			24	Shapiro-Wilk Test Statisitic			0.647275
Number of Unique Samples			20	Shapiro-Wilk 5% Critical Value			0.916
Minimum			49	Data not normal at 5% significance level			
Maximum			780				
Mean			202.7083	95% UCL (Assuming Normal Distribution)			
Median			145	Student's-t UCL			269.9712
Standard Deviation			192.266				
Variance			36966.22	Gamma Distribution Test			
Coefficient of Variation			0.948486	A-D Test Statistic			1.55318
Skewness			2.268004	A-D 5% Critical Value			0.755622
				K-S Test Statistic			0.259041
Gamma Statistics				K-S 5% Critical Value			0.180285
k hat			1.956662	Data do not follow gamma distribution			
k star (bias corrected)			1.739857	at 5% significance level			
Theta hat			103.599				
Theta star			116.5086	95% UCLs (Assuming Gamma Distribution)			
nu hat			93.91979	Approximate Gamma UCL			266.8155
nu star			83.51315	Adjusted Gamma UCL			272.0897
Approx.Chi Square Value (.05)			63.44762				
Adjusted Level of Significance			0.0392	Lognormal Distribution Test			
Adjusted Chi Square Value			62.21775	Shapiro-Wilk Test Statisitic			0.909017
				Shapiro-Wilk 5% Critical Value			0.916
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			3.89182				
Maximum of log data			6.659294	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			5.034976	95% H-UCL			268.3794
Standard Deviation of log data			0.697337	95% Chebyshev (MVUE) UCL			322.5876
Variance of log data			0.486278	97.5% Chebyshev (MVUE) UCL			378.395
				99% Chebyshev (MVUE) UCL			488.0178
				95% Non-parametric UCLs			
				CLT UCL			267.2625
				Adj-CLT UCL (Adjusted for skewness)			286.6765
				Mod-t UCL (Adjusted for skewness)			272.9993
				Jackknife UCL			269.9712
				Standard Bootstrap UCL			264.6943
				Bootstrap-t UCL			330.7563
RECOMMENDATION				Hall's Bootstrap UCL			281.3266
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			272.9167
				BCA Bootstrap UCL			260.4167
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			373.7783
				97.5% Chebyshev (Mean, Sd) UCL			447.8004
				99% Chebyshev (Mean, Sd) UCL			593.2024

Data File		Variable:	Tetrachloroethene
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	36	Shapiro-Wilk Test Statisitic	0.221839
Number of Unique Samples	18	Shapiro-Wilk 5% Critical Value	0.935
Minimum	0.55	Data not normal at 5% significance level	
Maximum	650		
Mean	25.14167	95% UCL (Assuming Normal Distribution)	
Median	5	Student's-t UCL	55.47971
Standard Deviation	107.7363		
Variance	11607.11	Gamma Distribution Test	
Coefficient of Variation	4.285169	A-D Test Statistic	5.902806
Skewness	5.895821	A-D 5% Critical Value	0.838822
		K-S Test Statistic	0.401252
Gamma Statistics		K-S 5% Critical Value	0.157681
k hat	0.380731	Data do not follow gamma distribution	
k star (bias corrected)	0.367522	at 5% significance level	
Theta hat	66.03531		
Theta star	68.40868	95% UCLs (Assuming Gamma Distribution)	
nu hat	27.41261	Approximate Gamma UCL	42.28506
nu star	26.46155	Adjusted Gamma UCL	43.32197
Approx.Chi Square Value (.05)	15.7334		
Adjusted Level of Significance	0.0428	Lognormal Distribution Test	
Adjusted Chi Square Value	15.35682	Shapiro-Wilk Test Statisitic	0.837955
		Shapiro-Wilk 5% Critical Value	0.935
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-0.597837		
Maximum of log data	6.476972	95% UCLs (Assuming Lognormal Distribution)	
Mean of log data	1.482332	95% H-UCL	23.88623
Standard Deviation of log data	1.411937	95% Chebyshev (MVUE) UCL	26.04861
Variance of log data	1.993566	97.5% Chebyshev (MVUE) UCL	32.41669
		99% Chebyshev (MVUE) UCL	44.92557
		95% Non-parametric UCLs	
		CLT UCL	54.67674
		Adj-CLT UCL (Adjusted for skewness)	73.5299
		Mod-t UCL (Adjusted for skewness)	58.42042
		Jackknife UCL	55.47971
		Standard Bootstrap UCL	54.5468
		Bootstrap-t UCL	288.7998
RECOMMENDATION		Hall's Bootstrap UCL	247.7782
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	60.37917
		BCA Bootstrap UCL	80.86389
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	103.4103
		97.5% Chebyshev (Mean, Sd) UCL	137.2772
		99% Chebyshev (Mean, Sd) UCL	203.8021

Data File					Variable:	Toluene		
Raw Statistics				Normal Distribution Test				
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic				0.184658
Number of Unique Samples			21	Shapiro-Wilk 5% Critical Value				0.935
Minimum			0.5	Data not normal at 5% significance level				
Maximum			13000					
Mean			385.35	95% UCL (Assuming Normal Distribution)				
Median			3.75	Student's-t UCL				995.0624
Standard Deviation			2165.208					
Variance			4688124	Gamma Distribution Test				
Coefficient of Variation			5.618808	A-D Test Statistic				9.000145
Skewness			5.977025	A-D 5% Critical Value				0.919519
				K-S Test Statistic				0.467682
Gamma Statistics				K-S 5% Critical Value				0.163879
k hat			0.165458	Data do not follow gamma distribution				
k star (bias corrected)			0.170188	at 5% significance level				
Theta hat			2328.992					
Theta star			2264.258	95% UCLs (Assuming Gamma Distribution)				
nu hat			11.91297	Approximate Gamma UCL				875.485
nu star			12.25355	Adjusted Gamma UCL				910.3304
Approx.Chi Square Value (.05)			5.393475					
Adjusted Level of Significance			0.0428	Lognormal Distribution Test				
Adjusted Chi Square Value			5.187025	Shapiro-Wilk Test Statisitic				0.764222
				Shapiro-Wilk 5% Critical Value				0.935
Log-transformed Statistics				Data not lognormal at 5% significance level				
Minimum of log data			-0.693147					
Maximum of log data			9.472705	95% UCLs (Assuming Lognormal Distribution)				
Mean of log data			1.375634	95% H-UCL				116.1844
Standard Deviation of log data			2.036219	95% Chebyshev (MVUE) UCL				82.52369
Variance of log data			4.146187	97.5% Chebyshev (MVUE) UCL				106.5685
				99% Chebyshev (MVUE) UCL				153.7998
				95% Non-parametric UCLs				
				CLT UCL				978.9249
				Adj-CLT UCL (Adjusted for skewness)				1363.041
				Mod-t UCL (Adjusted for skewness)				1054.977
				Jackknife UCL				995.0624
				Standard Bootstrap UCL				958.1634
				Bootstrap-t UCL				78727.41
RECOMMENDATION				Hall's Bootstrap UCL				50016.63
Data are Non-parametric (0.05)				Percentile Bootstrap UCL				1092.879
				BCA Bootstrap UCL				1505.304
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL				1958.337
				97.5% Chebyshev (Mean, Sd) UCL				2638.97
				99% Chebyshev (Mean, Sd) UCL				3975.941

Data File		Variable:	Xylene (Total)
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	36	Shapiro-Wilk Test Statisitic	0.363204
Number of Unique Samples	19	Shapiro-Wilk 5% Critical Value	0.935
Minimum	1.7	Data not normal at 5% significance level	
Maximum	650		
Mean	43.98472	95% UCL (Assuming Normal Distribution)	
Median	5	Student's-t UCL	81.1144
Standard Deviation	131.8547		
Variance	17385.66	Gamma Distribution Test	
Coefficient of Variation	2.997739	A-D Test Statistic	8.155926
Skewness	3.790133	A-D 5% Critical Value	0.84488
		K-S Test Statistic	0.4703
Gamma Statistics		K-S 5% Critical Value	0.158245
k hat	0.353369	Data do not follow gamma distribution	
k star (bias corrected)	0.34244	at 5% significance level	
Theta hat	124.4726		
Theta star	128.4451	95% UCLs (Assuming Gamma Distribution)	
nu hat	25.44254	Approximate Gamma UCL	75.59089
nu star	24.65567	Adjusted Gamma UCL	77.52534
Approx.Chi Square Value (.05)	14.3466		
Adjusted Level of Significance	0.0428	Lognormal Distribution Test	
Adjusted Chi Square Value	13.98862	Shapiro-Wilk Test Statisitic	0.662909
		Shapiro-Wilk 5% Critical Value	0.935
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	0.530628		
Maximum of log data	6.476972	95% UCLs (Assuming Lognormal Distribution)	
Mean of log data	1.883875	95% H-UCL	39.65407
Standard Deviation of log data	1.458576	95% Chebyshev (MVUE) UCL	42.39565
Variance of log data	2.127443	97.5% Chebyshev (MVUE) UCL	52.94669
		99% Chebyshev (MVUE) UCL	73.67216
		95% Non-parametric UCLs	
		CLT UCL	80.13167
		Adj-CLT UCL (Adjusted for skewness)	94.96464
		Mod-t UCL (Adjusted for skewness)	83.42804
		Jackknife UCL	81.1144
		Standard Bootstrap UCL	80.74501
		Bootstrap-t UCL	147.7227
RECOMMENDATION		Hall's Bootstrap UCL	199.0945
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	84.89583
		BCA Bootstrap UCL	109.4556
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	139.7749
		97.5% Chebyshev (Mean, Sd) UCL	181.2235
		99% Chebyshev (Mean, Sd) UCL	262.641

Data File					Variable:	1,4-Dichlorobenzene	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.219743
Number of Unique Samples			16	Shapiro-Wilk 5% Critical Value			0.935
Minimum			0.55	Data not normal at 5% significance level			
Maximum			650				
Mean			24.90556	95% UCL (Assuming Normal Distribution)			
Median			5	Student's-t UCL			55.25329
Standard Deviation			107.7707				
Variance			11614.53	Gamma Distribution Test			
Coefficient of Variation			4.327177	A-D Test Statistic			6.105917
Skewness			5.896973	A-D 5% Critical Value			0.840347
				K-S Test Statistic			0.423453
Gamma Statistics				K-S 5% Critical Value			0.157823
k hat			0.373842	Data do not follow gamma distribution			
k star (bias corrected)			0.361207	at 5% significance level			
Theta hat			66.62054				
Theta star			68.95092	95% UCLs (Assuming Gamma Distribution)			
nu hat			26.91662	Approximate Gamma UCL			42.10639
nu star			26.0069	Adjusted Gamma UCL			43.14974
Approx.Chi Square Value (.05)			15.38285				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			15.0109	Shapiro-Wilk Test Statisitic			0.818759
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			-0.597837				
Maximum of log data			6.476972	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			1.435536	95% H-UCL			23.45042
Standard Deviation of log data			1.424651	95% Chebyshev (MVUE) UCL			25.44037
Variance of log data			2.029629	97.5% Chebyshev (MVUE) UCL			31.6907
				99% Chebyshev (MVUE) UCL			43.96826
				95% Non-parametric UCLs			
				CLT UCL			54.45007
				Adj-CLT UCL (Adjusted for skewness)			73.31295
				Mod-t UCL (Adjusted for skewness)			58.19552
				Jackknife UCL			55.25329
				Standard Bootstrap UCL			53.74363
				Bootstrap-t UCL			288.6132
RECOMMENDATION				Hall's Bootstrap UCL			264.0176
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			60.75278
				BCA Bootstrap UCL			96.17083
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			103.1992
				97.5% Chebyshev (Mean, Sd) UCL			137.0769
				99% Chebyshev (Mean, Sd) UCL			203.6231

Data File					Variable:	Cyclohexane, methyl-	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statisitic			0.29349
Number of Unique Samples			17	Shapiro-Wilk 5% Critical Value			0.935
Minimum			1.4	Data not normal at 5% significance level			
Maximum			650				
Mean			31.70764	95% UCL (Assuming Normal Distribution)			
Median			5	Student's-t UCL			62.87459
Standard Deviation			110.6799				
Variance			12250.05	Gamma Distribution Test			
Coefficient of Variation			3.490639	A-D Test Statistic			6.889181
Skewness			5.308319	A-D 5% Critical Value			0.835138
				K-S Test Statistic			0.449597
Gamma Statistics				K-S 5% Critical Value			0.157338
k hat			0.397369	Data do not follow gamma distribution			
k star (bias corrected)			0.382774	at 5% significance level			
Theta hat			79.79385				
Theta star			82.83648	95% UCLs (Assuming Gamma Distribution)			
nu hat			28.6106	Approximate Gamma UCL			52.69327
nu star			27.55972	Adjusted Gamma UCL			53.95424
Approx.Chi Square Value (.05)			16.58378				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			16.1962	Shapiro-Wilk Test Statisitic			0.750385
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			0.336472				
Maximum of log data			6.476972	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			1.798812	95% H-UCL			28.50215
Standard Deviation of log data			1.347595	95% Chebyshev (MVUE) UCL			31.84638
Variance of log data			1.816011	97.5% Chebyshev (MVUE) UCL			39.42974
				99% Chebyshev (MVUE) UCL			54.32578
				95% Non-parametric UCLs			
				CLT UCL			62.04969
				Adj-CLT UCL (Adjusted for skewness)			79.48797
				Mod-t UCL (Adjusted for skewness)			65.59462
				Jackknife UCL			62.87459
				Standard Bootstrap UCL			62.30052
				Bootstrap-t UCL			160.8634
RECOMMENDATION				Hall's Bootstrap UCL			155.2112
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			66.175
				BCA Bootstrap UCL			94.07639
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			112.1147
				97.5% Chebyshev (Mean, Sd) UCL			146.907
				99% Chebyshev (Mean, Sd) UCL			215.2495

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3			From File	H:\JCV\Puritan\2007\EPCs\Subsurface Soil\nunes_subsoil_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Benzo(a)pyrene**											
10												
11						**General Statistics**						
12						Number of Valid Samples	14			Number of Detected Data		10
13						Number of Unique Samples	10			Number of Non-Detect Data		4
14										Percent Non-Detects		28.57%
15												
16				**Raw Statistics**						**Log-transformed Statistics**		
17						Minimum Detected	89			Minimum Detected		4.489
18						Maximum Detected	21000			Maximum Detected		9.952
19						Mean of Detected	3367			Mean of Detected		6.74
20						SD of Detected	6445			SD of Detected		1.772
21						Minimum Non-Detect	140			Minimum Non-Detect		4.942
22						Maximum Non-Detect	170			Maximum Non-Detect		5.136
23												
24				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		6
25				For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected		8
26				those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		42.86%
27												
28						**UCL Statistics**						
29				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	0.568			Shapiro Wilk Test Statistic		0.948
31						5% Shapiro Wilk Critical Value	0.842			5% Shapiro Wilk Critical Value		0.842
32				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
33												
34				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	2426			Mean		6.047
37						SD	5580			SD		1.862
38						95% DL/2 (t) UCL	5068			95% H-Stat (DL/2) UCL		13137
39												
40						Maximum Likelihood Estimate(MLE) Method				Robust ROS Method		
41						Mean	-288			Mean in Log Scale		6.023
42						SD	7832			SD in Log Scale		1.898
43						95% MLE (t) UCL	3419			Mean in Original Scale		2426
44						95% MLE (Tiku) UCL	3995			SD in Original Scale		5581
45										95% Percentile Bootstrap UCL		5178
46										95% BCA Bootstrap UCL		6976
47												
48				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
49						k star (bias corrected)	0.392			**Data appear Gamma Distributed at 5% Significance Level**		
50						Theta Star	8586					
51						nu star	7.842					
52												
53						A-D Test Statistic	0.62			**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	0.783					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	0.783					Mean	2435
56					5% K-S Critical Value	0.282					SD	5374
57				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	1514
58											95% KM (t) UCL	5116
59				Assuming Gamma Distribution							95% KM (z) UCL	4925
60					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5074
61					Minimum	0					95% KM (bootstrap t) UCL	10980
62					Maximum	21000					95% KM (BCA) UCL	5421
63					Mean	2390					95% KM (percentile) UCL	5189
64					Median	315					95% KM (Chebyshev) UCL	9034
65					SD	5597					97.5% KM (Chebyshev) UCL	11889
66					k star	0.101					99% KM (Chebyshev) UCL	17498
67					Theta star	23671						
68					Nu star	2.827					Potential UCLs to Use	
69					AppChi2	0.323					95% KM (Chebyshev) UCL	9034
70					95% Gamma Approximate UCL	20913						
71					95% Adjusted Gamma UCL	27950						
72												
73												
74	Benzo(b)fluoranthene											
75												
76					General Statistics							
77					Number of Valid Samples	14					Number of Detected Data	11
78					Number of Unique Samples	11					Number of Non-Detect Data	3
79											Percent Non-Detects	21.43%
80												
81				Raw Statistics							Log-transformed Statistics	
82					Minimum Detected	120					Minimum Detected	4.787
83					Maximum Detected	24000					Maximum Detected	10.09
84					Mean of Detected	3670					Mean of Detected	6.834
85					SD of Detected	7076					SD of Detected	1.735
86					Minimum Non-Detect	140					Minimum Non-Detect	4.942
87					Maximum Non-Detect	150					Maximum Non-Detect	5.011
88												
89	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	5
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	9
91	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.71%
92												
93					UCL Statistics							
94				Normal Distribution Test with Detected Values Only							Lognormal Distribution Test with Detected Values Only	
95					Shapiro Wilk Test Statistic	0.563					Shapiro Wilk Test Statistic	0.932
96					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
97				Data not Normal at 5% Significance Level							Data appear Lognormal at 5% Significance Level	
98												
99				Assuming Normal Distribution							Assuming Lognormal Distribution	
100					DL/2 Substitution Method						DL/2 Substitution Method	
101					Mean	2899					Mean	6.285
102					SD	6392					SD	1.873
103					95% DL/2 (t) UCL	5925					95% H-Stat (DL/2) UCL	15683
104												
105					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
106					Mean	615					Mean in Log Scale	6.193

	A	B	C	D	E	F	G	H	I	J	K	L
107					SD	8293					SD in Log Scale	1.996
108					95% MLE (t) UCL	4540					Mean in Original Scale	2895
109					95% MLE (Tiku) UCL	4873					SD in Original Scale	6395
110											95% Percentile Bootstrap UCL	5887
111											95% BCA Bootstrap UCL	7854
112												
113				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
114					k star (bias corrected)	0.4			**Data appear Gamma Distributed at 5% Significance Level**			
115					Theta Star	9167						
116					nu star	8.809						
117												
118					A-D Test Statistic	0.707			**Nonparametric Statistics**			
119					5% A-D Critical Value	0.787					Kaplan-Meier (KM) Method	
120					K-S Test Statistic	0.787					Mean	2910
121					5% K-S Critical Value	0.27					SD	6155
122				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	1725
123											95% KM (t) UCL	5965
124				**Assuming Gamma Distribution**							95% KM (z) UCL	5748
125					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5930
126					Minimum	0					95% KM (bootstrap t) UCL	11928
127					Maximum	24000					95% KM (BCA) UCL	5962
128					Mean	2865					95% KM (percentile) UCL	6011
129					Median	415					95% KM (Chebyshev) UCL	10430
130					SD	6409					97.5% KM (Chebyshev) UCL	13684
131					k star	0.109					99% KM (Chebyshev) UCL	20076
132					Theta star	26263						
133					Nu star	3.055			**Potential UCLs to Use**			
134					AppChi2	0.389					95% KM (Chebyshev) UCL	10430
135					95% Gamma Approximate UCL	22510						
136					95% Adjusted Gamma UCL	29962						
137												
138												
139	**Benzo(g,h,i)perylene**											
140												
141					**General Statistics**							
142					Number of Valid Samples	14					Number of Detected Data	9
143					Number of Unique Samples	9					Number of Non-Detect Data	5
144											Percent Non-Detects	35.71%
145												
146				**Raw Statistics**					**Log-transformed Statistics**			
147					Minimum Detected	83					Minimum Detected	4.419
148					Maximum Detected	13000					Maximum Detected	9.473
149					Mean of Detected	2458					Mean of Detected	6.588
150					SD of Detected	4164					SD of Detected	1.729
151					Minimum Non-Detect	140					Minimum Non-Detect	4.942
152					Maximum Non-Detect	4200					Maximum Non-Detect	8.343
153												
154	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
155	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
156	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.86%
157												
158					**UCL Statistics**							
159				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			

	A	B	C	D	E	F	G	H	I	J	K	L
160					Shapiro Wilk Test Statistic	0.633					Shapiro Wilk Test Statistic	0.951
161					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
162					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
163												
164					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
165					DL/2 Substitution Method						DL/2 Substitution Method	
166					Mean	1751					Mean	6.014
167					SD	3448					SD	1.779
168					95% DL/2 (t) UCL	3383					95% H-Stat (DL/2) UCL	13492
169												
170					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
171											Mean in Log Scale	5.872
172											SD in Log Scale	1.726
173											Mean in Original Scale	1623
174											SD in Original Scale	3467
175											95% Percentile Bootstrap UCL	3293
176											95% BCA Bootstrap UCL	4326
177												
178					**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**	
179					k star (bias corrected)	0.419					**Data appear Gamma Distributed at 5% Significance Level**	
180					Theta Star	5859						
181					nu star	7.55						
182												
183					A-D Test Statistic	0.434					**Nonparametric Statistics**	
184					5% A-D Critical Value	0.769					Kaplan-Meier (KM) Method	
185					K-S Test Statistic	0.769					Mean	1666
186					5% K-S Critical Value	0.294					SD	3341
187					**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean	951.6
188											95% KM (t) UCL	3351
189					**Assuming Gamma Distribution**						95% KM (z) UCL	3231
190					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3316
191					Minimum	N/A					95% KM (bootstrap t) UCL	6631
192					Maximum	N/A					95% KM (BCA) UCL	3373
193					Mean	N/A					95% KM (percentile) UCL	3219
194					Median	N/A					95% KM (Chebyshev) UCL	5813
195					SD	N/A					97.5% KM (Chebyshev) UCL	7608
196					k star	N/A					99% KM (Chebyshev) UCL	11133
197					Theta star	N/A						
198					Nu star	N/A					**Potential UCLs to Use**	
199					AppChi2	N/A					95% KM (BCA) UCL	3373
200					95% Gamma Approximate UCL	N/A						
201					95% Adjusted Gamma UCL	N/A						
202												
203												
204	**Benzo[a]anthracene**											
205												
206					**General Statistics**							
207					Number of Valid Samples	14					Number of Detected Data	10
208					Number of Unique Samples	10					Number of Non-Detect Data	4
209											Percent Non-Detects	28.57%
210												
211					**Raw Statistics**						**Log-transformed Statistics**	
212					Minimum Detected	83					Minimum Detected	4.419

	A–E	F	G–K	L
213	Maximum Detected	22000	Maximum Detected	9.999
214	Mean of Detected	3430	Mean of Detected	6.697
215	SD of Detected	6769	SD of Detected	1.797
216	Minimum Non-Detect	140	Minimum Non-Detect	4.942
217	Maximum Non-Detect	170	Maximum Non-Detect	5.136
218				
219	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
220	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	8
221	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	42.86%
222				
223	**UCL Statistics**			
224	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
225	Shapiro Wilk Test Statistic	0.558	Shapiro Wilk Test Statistic	0.947
226	5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
227	**Data not Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
228				
229	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
230	DL/2 Substitution Method		DL/2 Substitution Method	
231	Mean	2472	Mean	6.016
232	SD	5847	SD	1.867
233	95% DL/2 (t) UCL	5239	95% H-Stat (DL/2) UCL	12121
234				
235	Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
236	Mean	-377.3	Mean in Log Scale	5.968
237	SD	8189	SD in Log Scale	1.928
238	95% MLE (t) UCL	3499	Mean in Original Scale	2470
239	95% MLE (Tiku) UCL	4103	SD in Original Scale	5848
240			95% Percentile Bootstrap UCL	5214
241			95% BCA Bootstrap UCL	7274
242				
243	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
244	k star (bias corrected)	0.38	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
245	Theta Star	9025		
246	nu star	7.602		
247				
248	A-D Test Statistic	0.665	**Nonparametric Statistics**	
249	5% A-D Critical Value	0.787	Kaplan-Meier (KM) Method	
250	K-S Test Statistic	0.787	Mean	2476
251	5% K-S Critical Value	0.283	SD	5633
252	**Data follow approximate Gamma Distribution at 5% Significance Level**		SE of Mean	1587
253			95% KM (t) UCL	5286
254	**Assuming Gamma Distribution**		95% KM (z) UCL	5086
255	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5243
256	Minimum	0	95% KM (bootstrap t) UCL	13397
257	Maximum	22000	95% KM (BCA) UCL	5201
258	Mean	2437	95% KM (percentile) UCL	5429
259	Median	285	95% KM (Chebyshev) UCL	9393
260	SD	5863	97.5% KM (Chebyshev) UCL	12386
261	k star	0.101	99% KM (Chebyshev) UCL	18265
262	Theta star	24167		
263	Nu star	2.824	**Potential UCLs to Use**	
264	AppChi2	0.322	95% KM (Chebyshev) UCL	9393
265	95% Gamma Approximate UCL	21362		

	A	B	C	D	E	F	G	H	I	J	K	L
266					95% Adjusted Gamma UCL	28551						
267												
268												
269	**Dibenz[a,h]anthracene**											
270												
271						**General Statistics**						
272					Number of Valid Samples	14				Number of Detected Data		6
273					Number of Unique Samples	6				Number of Non-Detect Data		8
274										Percent Non-Detects		57.14%
275												
276				**Raw Statistics**						**Log-transformed Statistics**		
277					Minimum Detected	68.5				Minimum Detected		4.227
278					Maximum Detected	4400				Maximum Detected		8.389
279					Mean of Detected	1102				Mean of Detected		6.136
280					SD of Detected	1652				SD of Detected		1.473
281					Minimum Non-Detect	140				Minimum Non-Detect		4.942
282					Maximum Non-Detect	4200				Maximum Non-Detect		8.343
283												
284	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		13
285	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		1
286	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		92.86%
287												
288						**UCL Statistics**						
289				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
290					Shapiro Wilk Test Statistic	0.678				Shapiro Wilk Test Statistic		0.976
291					5% Shapiro Wilk Critical Value	0.788				5% Shapiro Wilk Critical Value		0.788
292				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
293												
294				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
295					DL/2 Substitution Method					DL/2 Substitution Method		
296					Mean	660.3				Mean		5.339
297					SD	1218				SD		1.447
298					95% DL/2 (t) UCL	1237				95% H-Stat (DL/2) UCL		1865
299												
300					Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method		
301										Mean in Log Scale		4.876
302										SD in Log Scale		1.524
303										Mean in Original Scale		506.1
304										SD in Original Scale		1156
305										95% Percentile Bootstrap UCL		1079
306										95% BCA Bootstrap UCL		1457
307												
308				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
309					k star (bias corrected)	0.459				**Data appear Gamma Distributed at 5% Significance Level**		
310					Theta Star	2400						
311					nu star	5.511						
312												
313					A-D Test Statistic	0.352				**Nonparametric Statistics**		
314					5% A-D Critical Value	0.724				Kaplan-Meier (KM) Method		
315					K-S Test Statistic	0.724				Mean		523.6
316					5% K-S Critical Value	0.345				SD		1110
317				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		325.9
318										95% KM (t) UCL		1101

	A	B	C	D	E	F	G	H	I	J	K	L
319	**Assuming Gamma Distribution**										95% KM (z) UCL	1060
320					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1038
321					Minimum	N/A					95% KM (bootstrap t) UCL	2333
322					Maximum	N/A					95% KM (BCA) UCL	1282
323					Mean	N/A					95% KM (percentile) UCL	1124
324					Median	N/A					95% KM (Chebyshev) UCL	1944
325					SD	N/A					97.5% KM (Chebyshev) UCL	2559
326					k star	N/A					99% KM (Chebyshev) UCL	3766
327					Theta star	N/A						
328					Nu star	N/A	**Potential UCLs to Use**					
329					AppChi2	N/A					95% KM (t) UCL	1101
330					95% Gamma Approximate UCL	N/A						
331					95% Adjusted Gamma UCL	N/A						
332												
333												
334	**Indeno(1,2,3-cd)pyrene**											
335												
336					**General Statistics**							
337					Number of Valid Samples	14					Number of Detected Data	8
338					Number of Unique Samples	8					Number of Non-Detect Data	6
339											Percent Non-Detects	42.86%
340												
341					**Raw Statistics**						**Log-transformed Statistics**	
342					Minimum Detected	88					Minimum Detected	4.477
343					Maximum Detected	12000					Maximum Detected	9.393
344					Mean of Detected	2465					Mean of Detected	6.651
345					SD of Detected	4031					SD of Detected	1.714
346					Minimum Non-Detect	140					Minimum Non-Detect	4.942
347					Maximum Non-Detect	4200					Maximum Non-Detect	8.343
348												
349	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
350	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
351	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.86%
352												
353					**UCL Statistics**							
354	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
355					Shapiro Wilk Test Statistic	0.653					Shapiro Wilk Test Statistic	0.959
356					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
357	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
358												
359	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
360					DL/2 Substitution Method						DL/2 Substitution Method	
361					Mean	1586					Mean	5.888
362					SD	3182					SD	1.77
363					95% DL/2 (t) UCL	3092					95% H-Stat (DL/2) UCL	8320
364												
365					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
366											Mean in Log Scale	5.797
367											SD in Log Scale	1.672
368											Mean in Original Scale	1462
369											SD in Original Scale	3193
370											95% Percentile Bootstrap UCL	3009
371											95% BCA Bootstrap UCL	3991

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
374					k star (bias corrected)	0.422	**Data appear Gamma Distributed at 5% Significance Level**					
375					Theta Star	5846						
376					nu star	6.748						
377												
378					A-D Test Statistic	0.372	**Nonparametric Statistics**					
379					5% A-D Critical Value	0.76					Kaplan-Meier (KM) Method	
380					K-S Test Statistic	0.76					Mean	1497
381					5% K-S Critical Value	0.308					SD	3078
382	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	883.1
383											95% KM (t) UCL	3061
384			**Assuming Gamma Distribution**								95% KM (z) UCL	2950
385					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3016
386					Minimum	N/A					95% KM (bootstrap t) UCL	5946
387					Maximum	N/A					95% KM (BCA) UCL	3364
388					Mean	N/A					95% KM (percentile) UCL	3118
389					Median	N/A					95% KM (Chebyshev) UCL	5346
390					SD	N/A					97.5% KM (Chebyshev) UCL	7012
391					k star	N/A					99% KM (Chebyshev) UCL	10284
392					Theta star	N/A						
393					Nu star	N/A	**Potential UCLs to Use**					
394					AppChi2	N/A					95% KM (BCA) UCL	3364
395					95% Gamma Approximate UCL	N/A						
396					95% Adjusted Gamma UCL	N/A						
397												
398												
399	**Phenanthrene**											
400												
401					**General Statistics**							
402					Number of Valid Samples	14					Number of Detected Data	10
403					Number of Unique Samples	10					Number of Non-Detect Data	4
404											Percent Non-Detects	28.57%
405												
406			**Raw Statistics**				**Log-transformed Statistics**					
407					Minimum Detected	92					Minimum Detected	4.522
408					Maximum Detected	21000					Maximum Detected	9.952
409					Mean of Detected	4333					Mean of Detected	7.012
410					SD of Detected	6820					SD of Detected	1.891
411					Minimum Non-Detect	140					Minimum Non-Detect	4.942
412					Maximum Non-Detect	170					Maximum Non-Detect	5.136
413												
414	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
415	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	8
416	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	42.86%
417												
418					**UCL Statistics**							
419	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
420					Shapiro Wilk Test Statistic	0.686					Shapiro Wilk Test Statistic	0.933
421					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842
422	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
423												
424			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					

	A	B	C	D	E	F	G	H	I	J	K	L
425					DL/2 Substitution Method						DL/2 Substitution Method	
426					Mean	3117					Mean	6.241
427					SD	6015					SD	2.019
428					95% DL/2 (t) UCL	5964					95% H-Stat (DL/2) UCL	24865
429												
430					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
431					Mean	227					Mean in Log Scale	6.243
432					SD	8584					SD in Log Scale	2.03
433					95% MLE (t) UCL	4290					Mean in Original Scale	3119
434					95% MLE (Tiku) UCL	4907					SD in Original Scale	6014
435											95% Percentile Bootstrap UCL	5790
436											95% BCA Bootstrap UCL	6921
437												
438				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
439					k star (bias corrected)	0.396				**Data appear Gamma Distributed at 5% Significance Level**		
440					Theta Star	10939						
441					nu star	7.923						
442												
443					A-D Test Statistic	0.553				**Nonparametric Statistics**		
444					5% A-D Critical Value	0.782					Kaplan-Meier (KM) Method	
445					K-S Test Statistic	0.782					Mean	3124
446					5% K-S Critical Value	0.282					SD	5793
447				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	1632
448											95% KM (t) UCL	6014
449				**Assuming Gamma Distribution**							95% KM (z) UCL	5808
450					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	5969
451					Minimum	0					95% KM (bootstrap t) UCL	9109
452					Maximum	21000					95% KM (BCA) UCL	6162
453					Mean	3081					95% KM (percentile) UCL	6025
454					Median	315					95% KM (Chebyshev) UCL	10237
455					SD	6035					97.5% KM (Chebyshev) UCL	13315
456					k star	0.101					99% KM (Chebyshev) UCL	19361
457					Theta star	30577						
458					Nu star	2.821				**Potential UCLs to Use**		
459					AppChi2	0.321					95% KM (Chebyshev) UCL	10237
460					95% Gamma Approximate UCL	27037						
461					95% Adjusted Gamma UCL	36137						
462												
463												
464	**Acetophenone**											
465												
466					**General Statistics**							
467					Number of Valid Samples	14					Number of Detected Data	1
468					Number of Unique Samples	1					Number of Non-Detect Data	13
469											Percent Non-Detects	92.86%
470												
471				**Raw Statistics**						**Log-transformed Statistics**		
472					Minimum Detected	80					Minimum Detected	4.382
473					Maximum Detected	80					Maximum Detected	4.382
474					Mean of Detected	80					Mean of Detected	4.382
475					SD of Detected	N/A					SD of Detected	N/A
476					Minimum Non-Detect	140					Minimum Non-Detect	4.942
477					Maximum Non-Detect	4200					Maximum Non-Detect	8.343

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
480	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
481	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
482												
483						UCL Statistics						
484						Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only
485						Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic	N/A
486						5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value	N/A
487						Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level
488												
489						Assuming Normal Distribution						Assuming Lognormal Distribution
490						DL/2 Substitution Method					DL/2 Substitution Method	
491						Mean	253.6				Mean	4.834
492						SD	534				SD	0.914
493						95% DL/2 (t) UCL	506.3				95% H-Stat (DL/2) UCL	453.1
494												
495						Maximum Likelihood Estimate(MLE) Method	N/A				Robust ROS Method	
496											Mean in Log Scale	N/A
497											SD in Log Scale	N/A
498											Mean in Original Scale	N/A
499											SD in Original Scale	N/A
500											95% Percentile Bootstrap UCL	N/A
501											95% BCA Bootstrap UCL	N/A
502												
503						Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only
504						Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)
505												
506												
507						Potential UCLs to Use						Nonparametric Statistics
508						99% KM (Chebyshev) UCL	80				Kaplan-Meier (KM) Method	
509											Mean	80
510											SD	0
511											SE of Mean	0
512											95% KM (t) UCL	80
513											95% KM (z) UCL	80
514											95% KM (jackknife) UCL	7159
515											95% KM (bootstrap t) UCL	N/A
516											95% KM (BCA) UCL	1E+31
517											95% KM (percentile) UCL	1E+31
518											95% KM (Chebyshev) UCL	80
519											97.5% KM (Chebyshev) UCL	80
520											99% KM (Chebyshev) UCL	80
521												
522												
523	bis(2-Ethylhexyl)phthalate											
524												
525						General Statistics						
526						Number of Valid Samples	14				Number of Detected Data	9
527						Number of Unique Samples	9				Number of Non-Detect Data	5
528											Percent Non-Detects	35.71%
529												
530						Raw Statistics						Log-transformed Statistics

	A–E	F	G–K	L
531	Minimum Detected	85	Minimum Detected	4.443
532	Maximum Detected	1300000	Maximum Detected	14.08
533	Mean of Detected	144996	Mean of Detected	7.013
534	SD of Detected	433127	SD of Detected	2.778
535	Minimum Non-Detect	140	Minimum Non-Detect	4.942
536	Maximum Non-Detect	170	Maximum Non-Detect	5.136
537				
538	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
539	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	8
540	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	42.86%
541				
542	**UCL Statistics**			
543	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
544	Shapiro Wilk Test Statistic	0.391	Shapiro Wilk Test Statistic	0.686
545	5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
546	**Data not Normal at 5% Significance Level**		**Data not Lognormal at 5% Significance Level**	
547				
548	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
549	DL/2 Substitution Method		DL/2 Substitution Method	
550	Mean	93239	Mean	6.054
551	SD	347330	SD	2.556
552	95% DL/2 (t) UCL	257631	95% H-Stat (DL/2) UCL	320119
553				
554	Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
555	Mean	-82332	Mean in Log Scale	5.522
556	SD	473960	SD in Log Scale	3.051
557	95% MLE (t) UCL	141994	Mean in Original Scale	93220
558	95% MLE (Tiku) UCL	179548	SD in Original Scale	347336
559			95% Percentile Bootstrap UCL	278839
560			95% BCA Bootstrap UCL	371984
561				
562	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
563	k star (bias corrected)	0.179	**Data do not follow a Discernable Distribution (0.05)**	
564	Theta Star	811947		
565	nu star	3.214		
566				
567	A-D Test Statistic	2.244	**Nonparametric Statistics**	
568	5% A-D Critical Value	0.861	Kaplan-Meier (KM) Method	
569	K-S Test Statistic	0.861	Mean	93242
570	5% K-S Critical Value	0.31	SD	334695
571	**Data not Gamma Distributed at 5% Significance Level**		SE of Mean	94877
572			95% KM (t) UCL	261263
573	**Assuming Gamma Distribution**		95% KM (z) UCL	249301
574	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	257583
575	Minimum	0	95% KM (bootstrap t) UCL	134880000
576	Maximum	1300000	95% KM (BCA) UCL	279132
577	Mean	93206	95% KM (percentile) UCL	278885
578	Median	300	95% KM (Chebyshev) UCL	506802
579	SD	347340	97.5% KM (Chebyshev) UCL	685749
580	k star	0.0899	99% KM (Chebyshev) UCL	1037257
581	Theta star	1036220		
582	Nu star	2.519	**Potential UCLs to Use**	
583	AppChi2	0.245	99% KM (Chebyshev) UCL	1037257

	A	B	C	D	E	F	G	H	I	J	K	L
584					95% Gamma Approximate UCL	956774						
585					95% Adjusted Gamma UCL	1271574						
586												
587												
588	**Di-N-Octyl phthalate**											
589												
590						**General Statistics**						
591					Number of Valid Samples	14					Number of Detected Data	2
592					Number of Unique Samples	2					Number of Non-Detect Data	12
593											Percent Non-Detects	85.71%
594												
595				**Raw Statistics**						**Log-transformed Statistics**		
596					Minimum Detected	100					Minimum Detected	4.605
597					Maximum Detected	270000					Maximum Detected	12.51
598					Mean of Detected	135050					Mean of Detected	8.556
599					SD of Detected	190848					SD of Detected	5.587
600					Minimum Non-Detect	140					Minimum Non-Detect	4.942
601					Maximum Non-Detect	390					Maximum Non-Detect	5.966
602												
603	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
604	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
605	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.86%
606												
607						**UCL Statistics**						
608				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
609					Shapiro Wilk Test Statistic	1					Shapiro Wilk Test Statistic	1
610					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
611				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
612												
613				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
614					DL/2 Substitution Method						DL/2 Substitution Method	
615					Mean	19382					Mean	5.128
616					SD	72133					SD	2.157
617					95% DL/2 (t) UCL	53523					95% H-Stat (DL/2) UCL	14260
618												
619					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
620											Mean in Log Scale	5.136
621											SD in Log Scale	2.746
622											Mean in Original Scale	19601
623											SD in Original Scale	72072
624											95% Percentile Bootstrap UCL	58101
625											95% BCA Bootstrap UCL	77437
626												
627				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
628					k star (bias corrected)	N/A				**Data do not follow a Discernable Distribution (0.05)**		
629					Theta Star	N/A						
630					nu star	N/A						
631												
632					A-D Test Statistic	0.372				**Nonparametric Statistics**		
633					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
634					K-S Test Statistic	N/A					Mean	19379
635					5% K-S Critical Value	N/A					SD	69510
636				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	26272

	A	B	C	D	E	F	G	H	I	J	K	L
637											95% KM (t) UCL	65905
638				**Assuming Gamma Distribution**							95% KM (z) UCL	62593
639				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	201757
640					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
641					Maximum	N/A					95% KM (BCA) UCL	1E+31
642					Mean	N/A					95% KM (percentile) UCL	1E+31
643					Median	N/A					95% KM (Chebyshev) UCL	133897
644					SD	N/A					97.5% KM (Chebyshev) UCL	183449
645					k star	N/A					99% KM (Chebyshev) UCL	280784
646					Theta star	N/A						
647					Nu star	N/A				**Potential UCLs to Use**		
648					AppChi2	N/A					99% KM (Chebyshev) UCL	280784
649					95% Gamma Approximate UCL	N/A						
650					95% Adjusted Gamma UCL	N/A						
651				**Warning: Recommended UCL exceeds the maximum observation**								
652												
653												
654	**Aroclor-1248**											
655												
656					**General Statistics**							
657					Number of Valid Samples	14					Number of Detected Data	1
658					Number of Unique Samples	1					Number of Non-Detect Data	13
659											Percent Non-Detects	92.86%
660												
661				**Raw Statistics**						**Log-transformed Statistics**		
662					Minimum Detected	360					Minimum Detected	5.886
663					Maximum Detected	360					Maximum Detected	5.886
664					Mean of Detected	360					Mean of Detected	5.886
665					SD of Detected	N/A					SD of Detected	N/A
666					Minimum Non-Detect	14					Minimum Non-Detect	2.639
667					Maximum Non-Detect	42					Maximum Non-Detect	3.738
668												
669	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	13
670	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
671	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	92.86%
672												
673					**UCL Statistics**							
674				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
675					Shapiro Wilk Test Statistic	N/A					Shapiro Wilk Test Statistic	N/A
676					5% Shapiro Wilk Critical Value	N/A					5% Shapiro Wilk Critical Value	N/A
677				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
678												
679				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
680					DL/2 Substitution Method						DL/2 Substitution Method	
681					Mean	36.89					Mean	2.625
682					SD	93.18					SD	1.049
683					95% DL/2 (t) UCL	81					95% H-Stat (DL/2) UCL	38.16
684												
685					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
686											Mean in Log Scale	N/A
687											SD in Log Scale	N/A
688											Mean in Original Scale	N/A
689											SD in Original Scale	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
690											95% Percentile Bootstrap UCL	N/A
691											95% BCA Bootstrap UCL	N/A
692												
693	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
694	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
695												
696												
697	**Potential UCLs to Use**						**Nonparametric Statistics**					
698					99% KM (Chebyshev) UCL	360					Kaplan-Meier (KM) Method	
699											Mean	360
700											SD	0
701											SE of Mean	0
702											95% KM (t) UCL	360
703											95% KM (z) UCL	360
704											95% KM (jackknife) UCL	7159
705											95% KM (bootstrap t) UCL	N/A
706											95% KM (BCA) UCL	1E+31
707											95% KM (percentile) UCL	1E+31
708											95% KM (Chebyshev) UCL	360
709											97.5% KM (Chebyshev) UCL	360
710											99% KM (Chebyshev) UCL	360
711												
712												
713	**Aroclor-1254**											
714												
715	**General Statistics**											
716					Number of Valid Samples	14					Number of Detected Data	9
717					Number of Unique Samples	9					Number of Non-Detect Data	5
718											Percent Non-Detects	35.71%
719												
720	**Raw Statistics**						**Log-transformed Statistics**					
721					Minimum Detected	60					Minimum Detected	4.094
722					Maximum Detected	1000					Maximum Detected	6.908
723					Mean of Detected	250.3					Mean of Detected	5.024
724					SD of Detected	309.5					SD of Detected	0.98
725					Minimum Non-Detect	14					Minimum Non-Detect	2.639
726					Maximum Non-Detect	39					Maximum Non-Detect	3.664
727												
728	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	5
729	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	9
730	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	35.71%
731												
732	**UCL Statistics**											
733	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
734					Shapiro Wilk Test Statistic	0.679					Shapiro Wilk Test Statistic	0.852
735					5% Shapiro Wilk Critical Value	0.829					5% Shapiro Wilk Critical Value	0.829
736	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
737												
738	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
739					DL/2 Substitution Method						DL/2 Substitution Method	
740					Mean	165.1					Mean	4.073
741					SD	270.2					SD	1.556
742					95% DL/2 (t) UCL	293					95% H-Stat (DL/2) UCL	488.4

	A	B	C	D	E	F	G	H	I	J	K	L
743												
744				Maximum Likelihood Estimate(MLE) Method							Robust ROS Method	
745					Mean	81.04					Mean in Log Scale	4.145
746					SD	347.7					SD in Log Scale	1.453
747					95% MLE (t) UCL	245.6					Mean in Original Scale	165.7
748					95% MLE (Tiku) UCL	259.6					SD in Original Scale	269.8
749											95% Percentile Bootstrap UCL	294.4
750											95% BCA Bootstrap UCL	357.7
751												
752				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
753					k star (bias corrected)	0.834				**Data appear Lognormal at 5% Significance Level**		
754					Theta Star	300.2						
755					nu star	15.01						
756												
757					A-D Test Statistic	0.843				**Nonparametric Statistics**		
758					5% A-D Critical Value	0.741					Kaplan-Meier (KM) Method	
759					K-S Test Statistic	0.741					Mean	182.4
760					5% K-S Critical Value	0.286					SD	251.1
761				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	71.17
762											95% KM (t) UCL	308.4
763				**Assuming Gamma Distribution**							95% KM (z) UCL	299.4
764					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	302.6
765					Minimum	0					95% KM (bootstrap t) UCL	561.7
766					Maximum	1000					95% KM (BCA) UCL	317.2
767					Mean	160.9					95% KM (percentile) UCL	300.4
768					Median	73					95% KM (Chebyshev) UCL	492.6
769					SD	272.8					97.5% KM (Chebyshev) UCL	626.8
770					k star	0.118					99% KM (Chebyshev) UCL	890.5
771					Theta star	1369						
772					Nu star	3.292				**Potential UCLs to Use**		
773					AppChi2	0.464					95% KM (BCA) UCL	317.2
774					95% Gamma Approximate UCL	1142						
775					95% Adjusted Gamma UCL	1508						
776												
777												
778	**Aroclor-1260**											
779												
780						**General Statistics**						
781					Number of Valid Samples	14					Number of Detected Data	7
782					Number of Unique Samples	7					Number of Non-Detect Data	7
783											Percent Non-Detects	50.00%
784												
785				**Raw Statistics**						**Log-transformed Statistics**		
786					Minimum Detected	36					Minimum Detected	3.584
787					Maximum Detected	290					Maximum Detected	5.67
788					Mean of Detected	123.1					Mean of Detected	4.631
789					SD of Detected	83.38					SD of Detected	0.658
790					Minimum Non-Detect	14					Minimum Non-Detect	2.639
791					Maximum Non-Detect	42					Maximum Non-Detect	3.738
792												
793	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
794	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
795	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	57.14%

	A	B	C	D	E	F	G	H	I	J	K	L
796												
797						UCL Statistics						
798				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
799					Shapiro Wilk Test Statistic	0.874					Shapiro Wilk Test Statistic	0.99
800					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
801				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
802												
803				Assuming Normal Distribution						Assuming Lognormal Distribution		
804					DL/2 Substitution Method						DL/2 Substitution Method	
805					Mean	69.54					Mean	3.657
806					SD	79.5					SD	1.153
807					95% DL/2 (t) UCL	107.2					95% H-Stat (DL/2) UCL	160.8
808												
809					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
810					Mean	18.7					Mean in Log Scale	3.744
811					SD	129.8					SD in Log Scale	1.05
812					95% MLE (t) UCL	80.15					Mean in Original Scale	70.76
813					95% MLE (Tiku) UCL	101.6					SD in Original Scale	78.65
814											95% Percentile Bootstrap UCL	106.9
815											95% BCA Bootstrap UCL	115.1
816												
817				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
818					k star (bias corrected)	1.748				Data appear Normal at 5% Significance Level		
819					Theta Star	70.43						
820					nu star	24.48						
821												
822					A-D Test Statistic	0.202				Nonparametric Statistics		
823					5% A-D Critical Value	0.712					Kaplan-Meier (KM) Method	
824					K-S Test Statistic	0.712					Mean	79.57
825					5% K-S Critical Value	0.314					SD	69.84
826				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	20.16
827											95% KM (t) UCL	115.3
828				Assuming Gamma Distribution							95% KM (z) UCL	112.7
829					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	112.1
830					Minimum	0					95% KM (bootstrap t) UCL	136.3
831					Maximum	290					95% KM (BCA) UCL	139.7
832					Mean	63.84					95% KM (percentile) UCL	128.4
833					Median	30.43					95% KM (Chebyshev) UCL	167.5
834					SD	83.92					97.5% KM (Chebyshev) UCL	205.5
835					k star	0.12					99% KM (Chebyshev) UCL	280.2
836					Theta star	531.1						
837					Nu star	3.366				Potential UCLs to Use		
838					AppChi2	0.489					95% KM (t) UCL	115.3
839					95% Gamma Approximate UCL	439.8					95% KM (Percentile Bootstrap) UCL	128.4
840					95% Adjusted Gamma UCL	579.3						
841												
842												
843	Dieldrin											
844												
845						General Statistics						
846					Number of Valid Samples	14					Number of Detected Data	9
847					Number of Unique Samples	7					Number of Non-Detect Data	5
848											Percent Non-Detects	35.71%

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850	**Raw Statistics**						**Log-transformed Statistics**					
851					Minimum Detected	0	Log Statistics Not Avaliable					
852					Maximum Detected	250						
853					Mean of Detected	44.79						
854					Mean of Detected	44.79						
855					Mean of Detected	44.79						
856					Maximum Non-Detect	4.2						
857	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
858	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
859	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	57.14%
860												
861	**UCL Statistics**											
862	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
863					Shapiro Wilk Test Statistic	0.622					Not Available	
864					5% Shapiro Wilk Critical Value	0.829						
865	**Data not Normal at 5% Significance Level**											
866												
867	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
868					DL/2 Substitution Method						DL/2 Substitution Method	N/A
869					Mean	29.38						
870					SD	67.81						
871					95% DL/2 (t) UCL	61.47						
872												
873					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	N/A
874					Mean	-29.52						
875					SD	116.4						
876					95% MLE (t) UCL	25.58						
877					95% MLE (Tiku) UCL	46.06						
878												
879	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
880	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
881												
882												
883	**Potential UCLs to Use**						**Nonparametric Statistics**					
884					99% KM (Chebyshev) UCL	213.8					Kaplan-Meier (KM) Method	
885											Mean	28.8
886											SD	65.59
887											SE of Mean	18.59
888											95% KM (t) UCL	61.73
889											95% KM (z) UCL	59.38
890											95% KM (jackknife) UCL	61.01
891											95% KM (bootstrap t) UCL	216
892											95% KM (BCA) UCL	69.39
893											95% KM (percentile) UCL	61
894											95% KM (Chebyshev) UCL	109.8
895											97.5% KM (Chebyshev) UCL	144.9
896											99% KM (Chebyshev) UCL	213.8
897												
898												
899	**Aluminum**											
900												
901	**General Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
902					Number of Valid Samples	14					Number of Unique Samples	13
903												
904					**Raw Statistics**						**Log-transformed Statistics**	
905					Minimum	3900					Minimum of Log Data	8.269
906					Maximum	9800					Maximum of Log Data	9.19
907					Mean	5692					Mean of log Data	8.617
908					Median	5400					SD of log Data	0.248
909					SD	1547						
910					Coefficient of Variation	0.272						
911					Skewness	1.483						
912												
913					**Relevant UCL Statistics**							
914					**Normal Distribution Test**						**Lognormal Distribution Test**	
915					Shapiro Wilk Test Statistic	0.876					Shapiro Wilk Test Statistic	0.947
916					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
917					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
918												
919					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
920					95% Student's-t UCL	6424					95% H-UCL	6471
921					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	7338
922					95% Adjusted-CLT UCL	6547					97.5% Chebyshev (MVUE) UCL	8054
923					95% Modified-t UCL	6451					99% Chebyshev (MVUE) UCL	9460
924												
925					**Gamma Distribution Test**						**Nonparametric Test**	
926					k star (bias corrected)	13.21					**Data appear Normal at 5% Significance Level**	
927					Theta Star	430.9						
928					nu star	369.8						
929					Approximate Chi Square Value (.05)	326.3					**Nonparametric Statistics**	
930					Adjusted Level of Significance	0.0312					95% CLT UCL	6372
931					Adjusted Chi Square Value	320.8					95% Jackknife UCL	6424
932											95% Standard Bootstrap UCL	6340
933					Anderson-Darling Test Statistic	0.373					95% Bootstrap-t UCL	6719
934					Anderson-Darling 5% Critical Value	0.734					95% Hall's Bootstrap UCL	7177
935					Kolmogorov-Smirnov Test Statistic	0.168					95% Percentile Bootstrap UCL	6391
936					Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	6554
937					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	7494
938											97.5% Chebyshev(Mean, Sd) UCL	8274
939					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	9806
940					95% Approximate Gamma UCL	6452						
941					95% Adjusted Gamma UCL	6561						
942												
943					**Potential UCL to Use**						Use 95% Student's-t UCL	6424
944												
945												
946	**Arsenic**											
947												
948					**General Statistics**							
949					Number of Valid Samples	14					Number of Unique Samples	14
950												
951					**Raw Statistics**						**Log-transformed Statistics**	
952					Minimum	2.8					Minimum of Log Data	1.03
953					Maximum	11.65					Maximum of Log Data	2.455
954					Mean	6.482					Mean of log Data	1.787

	A	B	C	D	E	F	G	H	I	J	K	L
955					Median	5.95					SD of log Data	0.429
956					SD	2.674						
957					Coefficient of Variation	0.413						
958					Skewness	0.617						
959												
960					**Relevant UCL Statistics**							
961				**Normal Distribution Test**						**Lognormal Distribution Test**		
962					Shapiro Wilk Test Statistic	0.941					Shapiro Wilk Test Statistic	0.957
963					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
964				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
965												
966				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
967					95% Student's-t UCL	7.748					95% H-UCL	8.322
968				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	9.819
969					95% Adjusted-CLT UCL	7.784					97.5% Chebyshev (MVUE) UCL	11.25
970					95% Modified-t UCL	7.768					99% Chebyshev (MVUE) UCL	14.07
971												
972				**Gamma Distribution Test**						**Nonparametric Test**		
973					k star (bias corrected)	4.97				**Data appear Normal at 5% Significance Level**		
974					Theta Star	1.304						
975					nu star	139.2						
976					Approximate Chi Square Value (.05)	112.9				**Nonparametric Statistics**		
977					Adjusted Level of Significance	0.0312					95% CLT UCL	7.658
978					Adjusted Chi Square Value	109.8					95% Jackknife UCL	7.748
979											95% Standard Bootstrap UCL	7.613
980					Anderson-Darling Test Statistic	0.233					95% Bootstrap-t UCL	8.033
981					Anderson-Darling 5% Critical Value	0.737					95% Hall's Bootstrap UCL	8.105
982					Kolmogorov-Smirnov Test Statistic	0.129					95% Percentile Bootstrap UCL	7.561
983					Kolmogorov-Smirnov 5% Critical Value	0.229					95% BCA Bootstrap UCL	7.586
984				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	9.598
985											97.5% Chebyshev(Mean, Sd) UCL	10.95
986				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	13.59
987					95% Approximate Gamma UCL	7.99						
988					95% Adjusted Gamma UCL	8.218						
989												
990				**Potential UCL to Use**							Use 95% Student's-t UCL	7.748
991												
992												
993	**Barium**											
994												
995					**General Statistics**							
996					Number of Valid Samples	14					Number of Detected Data	12
997					Number of Unique Samples	11					Number of Non-Detect Data	2
998											Percent Non-Detects	14.29%
999												
1000				**Raw Statistics**						**Log-transformed Statistics**		
1001					Minimum Detected	12					Minimum Detected	2.485
1002					Maximum Detected	1050					Maximum Detected	6.957
1003					Mean of Detected	192.6					Mean of Detected	4.238
1004					SD of Detected	298.9					SD of Detected	1.538
1005					Minimum Non-Detect	43					Minimum Non-Detect	3.761
1006					Maximum Non-Detect	47					Maximum Non-Detect	3.85
1007												

	A	B	C	D	E	F	G	H	I	J	K	L
1008	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
1009	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	6
1010	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	57.14%
1011												
1012						UCL Statistics						
1013				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1014				Shapiro Wilk Test Statistic		0.657				Shapiro Wilk Test Statistic		0.892
1015				5% Shapiro Wilk Critical Value		0.859				5% Shapiro Wilk Critical Value		0.859
1016				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
1017												
1018				Assuming Normal Distribution						Assuming Lognormal Distribution		
1019				DL/2 Substitution Method						DL/2 Substitution Method		
1020				Mean		168.3				Mean		4.077
1021				SD		281.8				SD		1.473
1022				95% DL/2 (t) UCL		301.7				95% H-Stat (DL/2) UCL		940.5
1023												
1024				Maximum Likelihood Estimate(MLE) Method						Robust ROS Method		
1025				Mean		-64.7				Mean in Log Scale		4.078
1026				SD		491				SD in Log Scale		1.472
1027				95% MLE (t) UCL		167.7				Mean in Original Scale		168.3
1028				95% MLE (Tiku) UCL		250.8				SD in Original Scale		281.8
1029										95% Percentile Bootstrap UCL		296.9
1030										95% BCA Bootstrap UCL		345.9
1031												
1032				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
1033				k star (bias corrected)		0.508				Data appear Gamma Distributed at 5% Significance Level		
1034				Theta Star		378.8						
1035				nu star		12.2						
1036												
1037				A-D Test Statistic		0.686				Nonparametric Statistics		
1038				5% A-D Critical Value		0.777				Kaplan-Meier (KM) Method		
1039				K-S Test Statistic		0.777				Mean		167.7
1040				5% K-S Critical Value		0.257				SD		271.9
1041				Data appear Gamma Distributed at 5% Significance Level						SE of Mean		75.9
1042										95% KM (t) UCL		302.1
1043				Assuming Gamma Distribution						95% KM (z) UCL		292.6
1044				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		301.3
1045				Minimum		0				95% KM (bootstrap t) UCL		484.2
1046				Maximum		1050				95% KM (BCA) UCL		305.2
1047				Mean		157.1				95% KM (percentile) UCL		300.8
1048				Median		0				95% KM (Chebyshev) UCL		498.6
1049				SD		288.2				97.5% KM (Chebyshev) UCL		641.7
1050				k star		0.0943				99% KM (Chebyshev) UCL		922.9
1051				Theta star		1667						
1052				Nu star		2.64				Potential UCLs to Use		
1053				AppChi2		0.274				95% KM (Chebyshev) UCL		498.6
1054				95% Gamma Approximate UCL		1513						
1055				95% Adjusted Gamma UCL		2019						
1056												
1057												
1058	Cadmium											
1059												
1060						General Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
1061					Number of Valid Samples	14					Number of Detected Data	13
1062					Number of Unique Samples	12					Number of Non-Detect Data	1
1063											Percent Non-Detects	7.14%
1064												
1065				**Raw Statistics**						**Log-transformed Statistics**		
1066					Minimum Detected	0.057					Minimum Detected	-2.865
1067					Maximum Detected	6					Maximum Detected	1.792
1068					Mean of Detected	1.932					Mean of Detected	0.049
1069					SD of Detected	1.876					SD of Detected	1.381
1070					Minimum Non-Detect	0.036					Minimum Non-Detect	-3.324
1071					Maximum Non-Detect	0.036					Maximum Non-Detect	-3.324
1072												
1073												
1074					**UCL Statistics**							
1075				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1076					Shapiro Wilk Test Statistic	0.829					Shapiro Wilk Test Statistic	0.902
1077					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
1078				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1079												
1080				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1081					DL/2 Substitution Method						DL/2 Substitution Method	
1082					Mean	1.795					Mean	-0.241
1083					SD	1.873					SD	1.715
1084					95% DL/2 (t) UCL	2.682					95% H-Stat (DL/2) UCL	13.66
1085												
1086					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1087					Mean	1.722					Mean in Log Scale	-0.18
1088					SD	1.91					SD in Log Scale	1.58
1089					95% MLE (t) UCL	2.626					Mean in Original Scale	1.797
1090					95% MLE (Tiku) UCL	2.59					SD in Original Scale	1.871
1091											95% Percentile Bootstrap UCL	2.656
1092											95% BCA Bootstrap UCL	2.781
1093												
1094				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
1095					k star (bias corrected)	0.784				**Data appear Gamma Distributed at 5% Significance Level**		
1096					Theta Star	2.465						
1097					nu star	20.38						
1098												
1099					A-D Test Statistic	0.369				**Nonparametric Statistics**		
1100					5% A-D Critical Value	0.76					Kaplan-Meier (KM) Method	
1101					K-S Test Statistic	0.76					Mean	1.798
1102					5% K-S Critical Value	0.244					SD	1.802
1103				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.501
1104											95% KM (t) UCL	2.686
1105				**Assuming Gamma Distribution**							95% KM (z) UCL	2.623
1106					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2.681
1107					Minimum	0.057					95% KM (bootstrap t) UCL	3.057
1108					Maximum	6					95% KM (BCA) UCL	2.665
1109					Mean	1.804					95% KM (percentile) UCL	2.628
1110					Median	1.35					95% KM (Chebyshev) UCL	3.984
1111					SD	1.864					97.5% KM (Chebyshev) UCL	4.929
1112					k star	0.724					99% KM (Chebyshev) UCL	6.787
1113					Theta star	2.492						

	A	B	C	D	E	F	G	H	I	J	K	L
1114					Nu star	20.28	Potential UCLs to Use					
1115					AppChi2	11.05					95% KM (Chebyshev) UCL	3.984
1116				95% Gamma Approximate UCL		3.31						
1117				95% Adjusted Gamma UCL		3.601						
1118												
1119												
1120	Chromium											
1121												
1122					General Statistics							
1123				Number of Valid Samples		14					Number of Unique Samples	14
1124												
1125				Raw Statistics			Log-transformed Statistics					
1126					Minimum	5.3					Minimum of Log Data	1.668
1127					Maximum	209					Maximum of Log Data	5.342
1128					Mean	41.34					Mean of log Data	3.267
1129					Median	28.5					SD of log Data	0.977
1130					SD	50.92						
1131					Coefficient of Variation	1.232						
1132					Skewness	3.095						
1133												
1134					Relevant UCL Statistics							
1135				Normal Distribution Test			Lognormal Distribution Test					
1136					Shapiro Wilk Test Statistic	0.601					Shapiro Wilk Test Statistic	0.944
1137					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
1138				Data not Normal at 5% Significance Level			Data appear Lognormal at 5% Significance Level					
1139												
1140				Assuming Normal Distribution			Assuming Lognormal Distribution					
1141					95% Student's-t UCL	65.44					95% H-UCL	89.4
1142				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	90.14
1143					95% Adjusted-CLT UCL	75.75					97.5% Chebyshev (MVUE) UCL	111.7
1144					95% Modified-t UCL	67.31					99% Chebyshev (MVUE) UCL	154
1145												
1146				Gamma Distribution Test			Nonparametric Test					
1147					k star (bias corrected)	1.022	Data appear Gamma Distributed at 5% Significance Level					
1148					Theta Star	40.43						
1149					nu star	28.62						
1150					Approximate Chi Square Value (.05)	17.41	Nonparametric Statistics					
1151					Adjusted Level of Significance	0.0312					95% CLT UCL	63.72
1152					Adjusted Chi Square Value	16.26					95% Jackknife UCL	65.44
1153											95% Standard Bootstrap UCL	62.11
1154					Anderson-Darling Test Statistic	0.549					95% Bootstrap-t UCL	98.67
1155					Anderson-Darling 5% Critical Value	0.755					95% Hall's Bootstrap UCL	154.3
1156					Kolmogorov-Smirnov Test Statistic	0.189					95% Percentile Bootstrap UCL	66.77
1157					Kolmogorov-Smirnov 5% Critical Value	0.234					95% BCA Bootstrap UCL	75.63
1158				Data appear Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL	100.7
1159											97.5% Chebyshev(Mean, Sd) UCL	126.3
1160				Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL	176.8
1161					95% Approximate Gamma UCL	67.94						
1162					95% Adjusted Gamma UCL	72.76						
1163												
1164				Potential UCL to Use							Use 95% Approximate Gamma UCL	67.94
1165												
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Copper											
1168												
1169						General Statistics						
1170					Number of Valid Samples	14					Number of Unique Samples	14
1171												
1172					Raw Statistics						Log-transformed Statistics	
1173					Minimum	5.7					Minimum of Log Data	1.74
1174					Maximum	644					Maximum of Log Data	6.468
1175					Mean	120					Mean of log Data	3.963
1176					Median	47.65					SD of log Data	1.242
1177					SD	196.2						
1178					Coefficient of Variation	1.634						
1179					Skewness	2.312						
1180												
1181						Relevant UCL Statistics						
1182					Normal Distribution Test						Lognormal Distribution Test	
1183					Shapiro Wilk Test Statistic	0.563					Shapiro Wilk Test Statistic	0.926
1184					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
1185					Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
1186												
1187					Assuming Normal Distribution						Assuming Lognormal Distribution	
1188					95% Student's-t UCL	212.9					95% H-UCL	345.2
1189					95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	272
1190					95% Adjusted-CLT UCL	240.9					97.5% Chebyshev (MVUE) UCL	344.6
1191					95% Modified-t UCL	218.3					99% Chebyshev (MVUE) UCL	487.1
1192												
1193					Gamma Distribution Test						Nonparametric Test	
1194					k star (bias corrected)	0.62					Data appear Lognormal at 5% Significance Level	
1195					Theta Star	193.5						
1196					nu star	17.37						
1197					Approximate Chi Square Value (.05)	8.937					Nonparametric Statistics	
1198					Adjusted Level of Significance	0.0312					95% CLT UCL	206.3
1199					Adjusted Chi Square Value	8.145					95% Jackknife UCL	212.9
1200											95% Standard Bootstrap UCL	202.4
1201					Anderson-Darling Test Statistic	1.264					95% Bootstrap-t UCL	728.5
1202					Anderson-Darling 5% Critical Value	0.773					95% Hall's Bootstrap UCL	783.9
1203					Kolmogorov-Smirnov Test Statistic	0.294					95% Percentile Bootstrap UCL	208.8
1204					Kolmogorov-Smirnov 5% Critical Value	0.238					95% BCA Bootstrap UCL	243.6
1205					Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	348.6
1206											97.5% Chebyshev(Mean, Sd) UCL	447.4
1207					Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	641.7
1208					95% Approximate Gamma UCL	233.3						
1209					95% Adjusted Gamma UCL	256						
1210												
1211					Potential UCL to Use						Use 95% Chebyshev (MVUE) UCL	272
1212												
1213												
1214	Iron											
1215												
1216						General Statistics						
1217					Number of Valid Samples	14					Number of Unique Samples	10
1218												
1219					Raw Statistics						Log-transformed Statistics	

	A	B	C	D	E	F	G	H	I	J	K	L
1220					Minimum	6200				Minimum of Log Data		8.732
1221					Maximum	54500				Maximum of Log Data		10.91
1222					Mean	16962				Mean of log Data		9.466
1223					Median	11000				SD of log Data		0.689
1224					SD	15942						
1225					Coefficient of Variation	0.94						
1226					Skewness	1.956						
1227												
1228					**Relevant UCL Statistics**							
1229				**Normal Distribution Test**						**Lognormal Distribution Test**		
1230					Shapiro Wilk Test Statistic	0.637				Shapiro Wilk Test Statistic		0.807
1231					Shapiro Wilk Critical Value	0.874				Shapiro Wilk Critical Value		0.874
1232				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1233												
1234				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1235					95% Student's-t UCL	24507				95% H-UCL		25532
1236				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		29549
1237					95% Adjusted-CLT UCL	26350				97.5% Chebyshev (MVUE) UCL		35394
1238					95% Modified-t UCL	24878				99% Chebyshev (MVUE) UCL		46875
1239												
1240				**Gamma Distribution Test**						**Nonparametric Test**		
1241					k star (bias corrected)	1.604				**Data do not follow a Discernable Distribution (0.05)**		
1242					Theta Star	10575						
1243					nu star	44.91						
1244					Approximate Chi Square Value (.05)	30.54				**Nonparametric Statistics**		
1245					Adjusted Level of Significance	0.0312				95% CLT UCL		23970
1246					Adjusted Chi Square Value	28.97				95% Jackknife UCL		24507
1247										95% Standard Bootstrap UCL		23659
1248					Anderson-Darling Test Statistic	1.619				95% Bootstrap-t UCL		37366
1249					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL		30997
1250					Kolmogorov-Smirnov Test Statistic	0.331				95% Percentile Bootstrap UCL		24083
1251					Kolmogorov-Smirnov 5% Critical Value	0.232				95% BCA Bootstrap UCL		26580
1252				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		35533
1253										97.5% Chebyshev(Mean, Sd) UCL		43569
1254				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		59354
1255					95% Approximate Gamma UCL	24945						
1256					95% Adjusted Gamma UCL	26294						
1257												
1258				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL		35533
1259												
1260												
1261	**Lead**											
1262												
1263					**General Statistics**							
1264					Number of Valid Samples	14				Number of Unique Samples		12
1265												
1266				**Raw Statistics**						**Log-transformed Statistics**		
1267					Minimum	10				Minimum of Log Data		2.303
1268					Maximum	5460				Maximum of Log Data		8.605
1269					Mean	728.3				Mean of log Data		4.724
1270					Median	50.88				SD of log Data		2.07
1271					SD	1503						
1272					Coefficient of Variation	2.064						

	A	B	C	D	E	F	G	H	I	J	K	L
1273					Skewness	2.819						
1274												
1275					Relevant UCL Statistics							
1276				Normal Distribution Test						Lognormal Distribution Test		
1277					Shapiro Wilk Test Statistic	0.554					Shapiro Wilk Test Statistic	0.91
1278					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
1279				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
1280												
1281				Assuming Normal Distribution						Assuming Lognormal Distribution		
1282					95% Student's-t UCL	1440					95% H-UCL	15465
1283				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	2496
1284					95% Adjusted-CLT UCL	1713					97.5% Chebyshev (MVUE) UCL	3286
1285					95% Modified-t UCL	1490					99% Chebyshev (MVUE) UCL	4837
1286												
1287				Gamma Distribution Test						Nonparametric Test		
1288					k star (bias corrected)	0.33				Data appear Lognormal at 5% Significance Level		
1289					Theta Star	2210						
1290					nu star	9.227						
1291					Approximate Chi Square Value (.05)	3.465				Nonparametric Statistics		
1292					Adjusted Level of Significance	0.0312					95% CLT UCL	1389
1293					Adjusted Chi Square Value	3.012					95% Jackknife UCL	1440
1294											95% Standard Bootstrap UCL	1367
1295					Anderson-Darling Test Statistic	0.987					95% Bootstrap-t UCL	3280
1296					Anderson-Darling 5% Critical Value	0.821					95% Hall's Bootstrap UCL	3692
1297					Kolmogorov-Smirnov Test Statistic	0.274					95% Percentile Bootstrap UCL	1448
1298					Kolmogorov-Smirnov 5% Critical Value	0.246					95% BCA Bootstrap UCL	1763
1299				Data not Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL	2480
1300											97.5% Chebyshev(Mean, Sd) UCL	3238
1301				Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL	4726
1302					95% Approximate Gamma UCL	1940						
1303					95% Adjusted Gamma UCL	2231						
1304												
1305				Potential UCL to Use							Use 99% Chebyshev (MVUE) UCL	4837
1306												
1307												
1308	Manganese											
1309												
1310					General Statistics							
1311					Number of Valid Samples	14					Number of Unique Samples	14
1312												
1313				Raw Statistics						Log-transformed Statistics		
1314					Minimum	89					Minimum of Log Data	4.489
1315					Maximum	666					Maximum of Log Data	6.501
1316					Mean	220.6					Mean of log Data	5.219
1317					Median	170					SD of log Data	0.587
1318					SD	156.1						
1319					Coefficient of Variation	0.708						
1320					Skewness	2.014						
1321												
1322					Relevant UCL Statistics							
1323				Normal Distribution Test						Lognormal Distribution Test		
1324					Shapiro Wilk Test Statistic	0.782					Shapiro Wilk Test Statistic	0.943
1325					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874

	A	B	C	D	E	F	G	H	I	J	K	L
1326	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1327												
1328	Assuming Normal Distribution						Assuming Lognormal Distribution					
1329					95% Student's-t UCL	294.5					95% H-UCL	314
1330	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	370.3
1331					95% Adjusted-CLT UCL	313.2					97.5% Chebyshev (MVUE) UCL	436.8
1332					95% Modified-t UCL	298.2					99% Chebyshev (MVUE) UCL	567.4
1333												
1334	Gamma Distribution Test						Nonparametric Test					
1335					k star (bias corrected)	2.39	Data appear Gamma Distributed at 5% Significance Level					
1336					Theta Star	92.29						
1337					nu star	66.92						
1338					Approximate Chi Square Value (.05)	49.09	Nonparametric Statistics					
1339					Adjusted Level of Significance	0.0312					95% CLT UCL	289.2
1340					Adjusted Chi Square Value	47.07					95% Jackknife UCL	294.5
1341											95% Standard Bootstrap UCL	286.4
1342					Anderson-Darling Test Statistic	0.462					95% Bootstrap-t UCL	336.3
1343					Anderson-Darling 5% Critical Value	0.743					95% Hall's Bootstrap UCL	572.6
1344					Kolmogorov-Smirnov Test Statistic	0.145					95% Percentile Bootstrap UCL	293.6
1345					Kolmogorov-Smirnov 5% Critical Value	0.231					95% BCA Bootstrap UCL	312.5
1346	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	402.4
1347											97.5% Chebyshev(Mean, Sd) UCL	481.1
1348	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	635.7
1349					95% Approximate Gamma UCL	300.7						
1350					95% Adjusted Gamma UCL	313.6						
1351												
1352	Potential UCL to Use										Use 95% Approximate Gamma UCL	300.7
1353												
1354												
1355	Mercury											
1356												
1357	General Statistics											
1358					Number of Valid Samples	14					Number of Detected Data	13
1359					Number of Unique Samples	12					Number of Non-Detect Data	1
1360											Percent Non-Detects	7.14%
1361												
1362	Raw Statistics						Log-transformed Statistics					
1363					Minimum Detected	0.011					Minimum Detected	-4.51
1364					Maximum Detected	1.7					Maximum Detected	0.531
1365					Mean of Detected	0.253					Mean of Detected	-2.213
1366					SD of Detected	0.449					SD of Detected	1.283
1367					Minimum Non-Detect	0.012					Minimum Non-Detect	-4.423
1368					Maximum Non-Detect	0.012					Maximum Non-Detect	-4.423
1369												
1370												
1371	UCL Statistics											
1372	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1373					Shapiro Wilk Test Statistic	0.518					Shapiro Wilk Test Statistic	0.953
1374					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
1375	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1376												
1377	Assuming Normal Distribution						Assuming Lognormal Distribution					
1378					DL/2 Substitution Method						DL/2 Substitution Method	

	A	B	C	D	E	F	G	H	I	J	K	L
1379					Mean	0.235					Mean	-2.42
1380					SD	0.436					SD	1.457
1381					95% DL/2 (t) UCL	0.441					95% H-Stat (DL/2) UCL	0.975
1382												
1383					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1384					Mean	0.191					Mean in Log Scale	-2.381
1385					SD	0.466					SD in Log Scale	1.385
1386					95% MLE (t) UCL	0.411					Mean in Original Scale	0.235
1387					95% MLE (Tiku) UCL	0.401					SD in Original Scale	0.436
1388											95% Percentile Bootstrap UCL	0.45
1389											95% BCA Bootstrap UCL	0.575
1390												
1391				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
1392					k star (bias corrected)	0.604				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
1393					Theta Star	0.418						
1394					nu star	15.72						
1395												
1396					A-D Test Statistic	0.826				**Nonparametric Statistics**		
1397					5% A-D Critical Value	0.773					Kaplan-Meier (KM) Method	
1398					K-S Test Statistic	0.773					Mean	0.236
1399					5% K-S Critical Value	0.246					SD	0.42
1400	**Data follow approximate Gamma Distribution at 5% Significance Level**										SE of Mean	0.117
1401											95% KM (t) UCL	0.442
1402				**Assuming Gamma Distribution**							95% KM (z) UCL	0.428
1403					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.44
1404					Minimum	0					95% KM (bootstrap t) UCL	0.895
1405					Maximum	1.7					95% KM (BCA) UCL	0.459
1406					Mean	0.234					95% KM (percentile) UCL	0.458
1407					Median	0.08					95% KM (Chebyshev) UCL	0.745
1408					SD	0.437					97.5% KM (Chebyshev) UCL	0.965
1409					k star	0.223					99% KM (Chebyshev) UCL	1.398
1410					Theta star	1.049						
1411					Nu star	6.244				**Potential UCLs to Use**		
1412					AppChi2	1.766					95% KM (Chebyshev) UCL	0.745
1413					95% Gamma Approximate UCL	0.827						
1414					95% Adjusted Gamma UCL	0.994						
1415												
1416												
1417	**Thallium**											
1418												
1419					**General Statistics**							
1420					Number of Valid Samples	14					Number of Detected Data	5
1421					Number of Unique Samples	5					Number of Non-Detect Data	9
1422											Percent Non-Detects	64.29%
1423												
1424				**Raw Statistics**						**Log-transformed Statistics**		
1425					Minimum Detected	1.1					Minimum Detected	0.0953
1426					Maximum Detected	7					Maximum Detected	1.946
1427					Mean of Detected	4.11					Mean of Detected	1.135
1428					SD of Detected	2.83					SD of Detected	0.907
1429					Minimum Non-Detect	0.087					Minimum Non-Detect	-2.442
1430					Maximum Non-Detect	0.1					Maximum Non-Detect	-2.303
1431												

	A	B	C	D	E	F	G	H	I	J	K	L
1432	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
1433	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	5
1434	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	64.29%
1435												
1436						UCL Statistics						
1437				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1438					Shapiro Wilk Test Statistic	0.848					Shapiro Wilk Test Statistic	0.809
1439					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1440				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
1441												
1442				Assuming Normal Distribution						Assuming Lognormal Distribution		
1443					DL/2 Substitution Method						DL/2 Substitution Method	
1444					Mean	1.498					Mean	-1.568
1445					SD	2.559					SD	2.151
1446					95% DL/2 (t) UCL	2.709					95% H-Stat (DL/2) UCL	5.142
1447												
1448					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1449					Mean	-1.753					Mean in Log Scale	-0.734
1450					SD	5.47					SD in Log Scale	1.55
1451					95% MLE (t) UCL	0.836					Mean in Original Scale	1.582
1452					95% MLE (Tiku) UCL	2.175					SD in Original Scale	2.508
1453											95% Percentile Bootstrap UCL	2.707
1454											95% BCA Bootstrap UCL	2.898
1455												
1456				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
1457					k star (bias corrected)	0.913				Data appear Normal at 5% Significance Level		
1458					Theta Star	4.502						
1459					nu star	9.13						
1460												
1461					A-D Test Statistic	0.552				Nonparametric Statistics		
1462					5% A-D Critical Value	0.685					Kaplan-Meier (KM) Method	
1463					K-S Test Statistic	0.685					Mean	2.175
1464					5% K-S Critical Value	0.361					SD	2.09
1465				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	0.625
1466											95% KM (t) UCL	3.281
1467				Assuming Gamma Distribution							95% KM (z) UCL	3.202
1468					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.143
1469					Minimum	0					95% KM (bootstrap t) UCL	3.145
1470					Maximum	7					95% KM (BCA) UCL	6.629
1471					Mean	1.63					95% KM (percentile) UCL	5.229
1472					Median	0.538					95% KM (Chebyshev) UCL	4.897
1473					SD	2.502					97.5% KM (Chebyshev) UCL	6.075
1474					k star	0.127					99% KM (Chebyshev) UCL	8.389
1475					Theta star	12.87						
1476					Nu star	3.546				Potential UCLs to Use		
1477					AppChi2	0.551					95% KM (t) UCL	3.281
1478					95% Gamma Approximate UCL	10.49					95% KM (Percentile Bootstrap) UCL	5.229
1479					95% Adjusted Gamma UCL	13.72						
1480												
1481												
1482	Vanadium											
1483												
1484						General Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
1485					Number of Valid Samples	14					Number of Detected Data	13
1486					Number of Unique Samples	13					Number of Non-Detect Data	1
1487											Percent Non-Detects	7.14%
1488												
1489				**Raw Statistics**						**Log-transformed Statistics**		
1490					Minimum Detected	6.5					Minimum Detected	1.872
1491					Maximum Detected	101					Maximum Detected	4.615
1492					Mean of Detected	21.02					Mean of Detected	2.748
1493					SD of Detected	24.69					SD of Detected	0.677
1494					Minimum Non-Detect	11					Minimum Non-Detect	2.398
1495					Maximum Non-Detect	11					Maximum Non-Detect	2.398
1496												
1497												
1498					**UCL Statistics**							
1499				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1500					Shapiro Wilk Test Statistic	0.514					Shapiro Wilk Test Statistic	0.841
1501					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
1502				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1503												
1504				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1505					DL/2 Substitution Method						DL/2 Substitution Method	
1506					Mean	19.91					Mean	2.673
1507					SD	24.08					SD	0.707
1508					95% DL/2 (t) UCL	31.31					95% H-Stat (DL/2) UCL	29.52
1509												
1510					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1511					Mean	12.39					Mean in Log Scale	2.7
1512					SD	30.55					SD in Log Scale	0.675
1513					95% MLE (t) UCL	26.85					Mean in Original Scale	20.09
1514					95% MLE (Tiku) UCL	28.08					SD in Original Scale	23.97
1515											95% Percentile Bootstrap UCL	32.16
1516											95% BCA Bootstrap UCL	39.08
1517												
1518				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
1519					k star (bias corrected)	1.458				**Data do not follow a Discernable Distribution (0.05)**		
1520					Theta Star	14.42						
1521					nu star	37.9						
1522												
1523					A-D Test Statistic	1.367				**Nonparametric Statistics**		
1524					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
1525					K-S Test Statistic	0.746					Mean	20.15
1526					5% K-S Critical Value	0.24					SD	23.07
1527				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	6.419
1528											95% KM (t) UCL	31.52
1529				**Assuming Gamma Distribution**							95% KM (z) UCL	30.71
1530					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	31.49
1531					Minimum	0					95% KM (bootstrap t) UCL	67.24
1532					Maximum	101					95% KM (BCA) UCL	33.28
1533					Mean	16.99					95% KM (percentile) UCL	32.9
1534					Median	13.8					95% KM (Chebyshev) UCL	48.13
1535					SD	25.86					97.5% KM (Chebyshev) UCL	60.24
1536					k star	0.125					99% KM (Chebyshev) UCL	84.02
1537					Theta star	136.3						

	A	B	C	D	E	F	G	H	I	J	K	L
1538					Nu star	3.491	Potential UCLs to Use					
1539					AppChi2	0.532					95% KM (Chebyshev) UCL	48.13
1540				95% Gamma Approximate UCL		111.6						
1541				95% Adjusted Gamma UCL		146.3						
1542												
1543												
1544	Zinc											
1545												
1546					General Statistics							
1547				Number of Valid Samples		14					Number of Unique Samples	14
1548												
1549				Raw Statistics			Log-transformed Statistics					
1550					Minimum	20					Minimum of Log Data	2.996
1551					Maximum	2470					Maximum of Log Data	7.812
1552					Mean	549.5					Mean of log Data	5.389
1553					Median	164.3					SD of log Data	1.515
1554					SD	718.4						
1555					Coefficient of Variation	1.307						
1556					Skewness	1.782						
1557												
1558					Relevant UCL Statistics							
1559				Normal Distribution Test			Lognormal Distribution Test					
1560					Shapiro Wilk Test Statistic	0.757					Shapiro Wilk Test Statistic	0.942
1561					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
1562				Data not Normal at 5% Significance Level			Data appear Lognormal at 5% Significance Level					
1563												
1564				Assuming Normal Distribution			Assuming Lognormal Distribution					
1565					95% Student's-t UCL	889.5					95% H-UCL	3312
1566				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	1780
1567					95% Adjusted-CLT UCL	963					97.5% Chebyshev (MVUE) UCL	2292
1568					95% Modified-t UCL	904.7					99% Chebyshev (MVUE) UCL	3299
1569												
1570				Gamma Distribution Test			Nonparametric Test					
1571					k star (bias corrected)	0.568	Data appear Gamma Distributed at 5% Significance Level					
1572					Theta Star	967.9						
1573					nu star	15.89						
1574					Approximate Chi Square Value (.05)	7.888	Nonparametric Statistics					
1575					Adjusted Level of Significance	0.0312					95% CLT UCL	865.3
1576					Adjusted Chi Square Value	7.151					95% Jackknife UCL	889.5
1577											95% Standard Bootstrap UCL	855.2
1578					Anderson-Darling Test Statistic	0.534					95% Bootstrap-t UCL	1164
1579					Anderson-Darling 5% Critical Value	0.779					95% Hall's Bootstrap UCL	1336
1580					Kolmogorov-Smirnov Test Statistic	0.188					95% Percentile Bootstrap UCL	872
1581					Kolmogorov-Smirnov 5% Critical Value	0.239					95% BCA Bootstrap UCL	965
1582				Data appear Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL	1386
1583											97.5% Chebyshev(Mean, Sd) UCL	1748
1584				Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL	2460
1585					95% Approximate Gamma UCL	1107						
1586					95% Adjusted Gamma UCL	1221						
1587												
1588				Potential UCL to Use							Use 95% Approximate Gamma UCL	1107
1589												

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	H:\JCV\Puritan\2007\EPCs\Surface Soil\nunes_ssoil_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Benzo(a)pyrene**											
10												
11						**General Statistics**						
12						Number of Valid Samples	17			Number of Unique Samples	13	
13												
14						**Raw Statistics**				**Log-transformed Statistics**		
15						Minimum	210			Minimum of Log Data	5.347	
16						Maximum	5400			Maximum of Log Data	8.594	
17						Mean	2072			Mean of log Data	7.419	
18						Median	1900			SD of log Data	0.767	
19						SD	1291					
20						Coefficient of Variation	0.623					
21						Skewness	1.249					
22												
23						**Relevant UCL Statistics**						
24						**Normal Distribution Test**				**Lognormal Distribution Test**		
25						Shapiro Wilk Test Statistic	0.867			Shapiro Wilk Test Statistic	0.868	
26						Shapiro Wilk Critical Value	0.892			Shapiro Wilk Critical Value	0.892	
27						**Data not Normal at 5% Significance Level**				**Data not Lognormal at 5% Significance Level**		
28												
29						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**		
30						95% Student's-t UCL	2619			95% H-UCL	3514	
31						**95% UCLs (Adjusted for Skewness)**				95% Chebyshev (MVUE) UCL	4090	
32						95% Adjusted-CLT UCL	2688			97.5% Chebyshev (MVUE) UCL	4913	
33						95% Modified-t UCL	2634			99% Chebyshev (MVUE) UCL	6528	
34												
35						**Gamma Distribution Test**				**Nonparametric Test**		
36						k star (bias corrected)	2.059			**Data do not follow a Discernable Distribution (0.05)**		
37						Theta Star	1006					
38						nu star	70.02					
39						Approximate Chi Square Value (.05)	51.75			**Nonparametric Statistics**		
40						Adjusted Level of Significance	0.0346			95% CLT UCL	2587	
41						Adjusted Chi Square Value	50.11			95% Jackknife UCL	2619	
42										95% Standard Bootstrap UCL	2576	
43						Anderson-Darling Test Statistic	0.755			95% Bootstrap-t UCL	2848	
44						Anderson-Darling 5% Critical Value	0.748			95% Hall's Bootstrap UCL	3210	
45						Kolmogorov-Smirnov Test Statistic	0.221			95% Percentile Bootstrap UCL	2607	
46						Kolmogorov-Smirnov 5% Critical Value	0.211			95% BCA Bootstrap UCL	2714	
47						**Data not Gamma Distributed at 5% Significance Level**				95% Chebyshev(Mean, Sd) UCL	3437	
48										97.5% Chebyshev(Mean, Sd) UCL	4028	
49						**Assuming Gamma Distribution**				99% Chebyshev(Mean, Sd) UCL	5188	
50						95% Approximate Gamma UCL	2803					
51						95% Adjusted Gamma UCL	2895					
52												
53						**Potential UCL to Use**				Use 95% Chebyshev (Mean, Sd) UCL	3437	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	**Benzo(b)fluoranthene**											
57												
58						**General Statistics**						
59					Number of Valid Samples	17				Number of Unique Samples		14
60												
61				**Raw Statistics**						**Log-transformed Statistics**		
62					Minimum	370				Minimum of Log Data		5.914
63					Maximum	6900				Maximum of Log Data		8.839
64					Mean	2785				Mean of log Data		7.738
65					Median	2300				SD of log Data		0.711
66					SD	1645						
67					Coefficient of Variation	0.591						
68					Skewness	1.087						
69												
70						**Relevant UCL Statistics**						
71				**Normal Distribution Test**						**Lognormal Distribution Test**		
72					Shapiro Wilk Test Statistic	0.917				Shapiro Wilk Test Statistic		0.913
73					Shapiro Wilk Critical Value	0.892				Shapiro Wilk Critical Value		0.892
74				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
75												
76				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
77					95% Student's-t UCL	3482				95% H-UCL		4431
78				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		5217
79					95% Adjusted-CLT UCL	3554				97.5% Chebyshev (MVUE) UCL		6219
80					95% Modified-t UCL	3499				99% Chebyshev (MVUE) UCL		8186
81												
82				**Gamma Distribution Test**						**Nonparametric Test**		
83					k star (bias corrected)	2.292				**Data appear Normal at 5% Significance Level**		
84					Theta Star	1215						
85					nu star	77.91						
86					Approximate Chi Square Value (.05)	58.58				**Nonparametric Statistics**		
87					Adjusted Level of Significance	0.0346				95% CLT UCL		3442
88					Adjusted Chi Square Value	56.82				95% Jackknife UCL		3482
89										95% Standard Bootstrap UCL		3406
90					Anderson-Darling Test Statistic	0.364				95% Bootstrap-t UCL		3621
91					Anderson-Darling 5% Critical Value	0.746				95% Hall's Bootstrap UCL		4088
92					Kolmogorov-Smirnov Test Statistic	0.145				95% Percentile Bootstrap UCL		3444
93					Kolmogorov-Smirnov 5% Critical Value	0.211				95% BCA Bootstrap UCL		3518
94				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		4525
95										97.5% Chebyshev(Mean, Sd) UCL		5277
96				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		6755
97					95% Approximate Gamma UCL	3705						
98					95% Adjusted Gamma UCL	3819						
99												
100				**Potential UCL to Use**						Use 95% Student's-t UCL		3482
101												
102												
103	**Benzo[a]anthracene**											
104												
105						**General Statistics**						
106					Number of Valid Samples	17				Number of Unique Samples		13

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	**Raw Statistics**						**Log-transformed Statistics**					
109					Minimum	190				Minimum of Log Data		5.247
110					Maximum	5800				Maximum of Log Data		8.666
111					Mean	1980				Mean of log Data		7.349
112					Median	1800				SD of log Data		0.812
113					SD	1312						
114					Coefficient of Variation	0.663						
115					Skewness	1.537						
116												
117	**Relevant UCL Statistics**											
118	**Normal Distribution Test**						**Lognormal Distribution Test**					
119					Shapiro Wilk Test Statistic	0.862				Shapiro Wilk Test Statistic		0.882
120					Shapiro Wilk Critical Value	0.892				Shapiro Wilk Critical Value		0.892
121	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
122												
123	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
124					95% Student's-t UCL	2536				95% H-UCL		3529
125	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		4059
126					95% Adjusted-CLT UCL	2630				97.5% Chebyshev (MVUE) UCL		4902
127					95% Modified-t UCL	2555				99% Chebyshev (MVUE) UCL		6559
128												
129	**Gamma Distribution Test**						**Nonparametric Test**					
130					k star (bias corrected)	1.864	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
131					Theta Star	1062						
132					nu star	63.38						
133					Approximate Chi Square Value (.05)	46.07	**Nonparametric Statistics**					
134					Adjusted Level of Significance	0.0346				95% CLT UCL		2503
135					Adjusted Chi Square Value	44.52				95% Jackknife UCL		2536
136										95% Standard Bootstrap UCL		2488
137					Anderson-Darling Test Statistic	0.638				95% Bootstrap-t UCL		2759
138					Anderson-Darling 5% Critical Value	0.749				95% Hall's Bootstrap UCL		3426
139					Kolmogorov-Smirnov Test Statistic	0.234				95% Percentile Bootstrap UCL		2522
140					Kolmogorov-Smirnov 5% Critical Value	0.211				95% BCA Bootstrap UCL		2634
141	**Data follow Appr. Gamma Distribution at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		3367
142										97.5% Chebyshev(Mean, Sd) UCL		3967
143	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		5146
144					95% Approximate Gamma UCL	2724						
145					95% Adjusted Gamma UCL	2819						
146												
147	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		2724
148												
149												
150	**Dibenz[a,h]anthracene**											
151												
152	**General Statistics**											
153					Number of Valid Samples	17				Number of Unique Samples		15
154												
155	**Raw Statistics**						**Log-transformed Statistics**					
156					Minimum	40				Minimum of Log Data		3.689
157					Maximum	810				Maximum of Log Data		6.697
158					Mean	441.6				Mean of log Data		5.893
159					Median	450				SD of log Data		0.776

	A	B	C	D	E	F	G	H	I	J	K	L
160					SD	220						
161					Coefficient of Variation	0.498						
162					Skewness	-0.153						
163												
164					Relevant UCL Statistics							
165				Normal Distribution Test						Lognormal Distribution Test		
166					Shapiro Wilk Test Statistic	0.974					Shapiro Wilk Test Statistic	0.826
167					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
168				Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
169												
170				Assuming Normal Distribution						Assuming Lognormal Distribution		
171					95% Student's-t UCL	534.8					95% H-UCL	774.7
172				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	899.9
173					95% Adjusted-CLT UCL	527.3					97.5% Chebyshev (MVUE) UCL	1082
174					95% Modified-t UCL	534.5					99% Chebyshev (MVUE) UCL	1440
175												
176				Gamma Distribution Test						Nonparametric Test		
177					k star (bias corrected)	2.253				Data appear Normal at 5% Significance Level		
178					Theta Star	196						
179					nu star	76.62						
180					Approximate Chi Square Value (.05)	57.46				Nonparametric Statistics		
181					Adjusted Level of Significance	0.0346					95% CLT UCL	529.4
182					Adjusted Chi Square Value	55.72					95% Jackknife UCL	534.8
183											95% Standard Bootstrap UCL	526.4
184					Anderson-Darling Test Statistic	0.584					95% Bootstrap-t UCL	530.9
185					Anderson-Darling 5% Critical Value	0.747					95% Hall's Bootstrap UCL	525.7
186					Kolmogorov-Smirnov Test Statistic	0.143					95% Percentile Bootstrap UCL	525.8
187					Kolmogorov-Smirnov 5% Critical Value	0.211					95% BCA Bootstrap UCL	521.8
188				Data appear Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL	674.2
189											97.5% Chebyshev(Mean, Sd) UCL	774.8
190				Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL	972.5
191					95% Approximate Gamma UCL	588.9						
192					95% Adjusted Gamma UCL	607.3						
193												
194				Potential UCL to Use							Use 95% Student's-t UCL	534.8
195												
196												
197	Indeno(1,2,3-cd)pyrene											
198												
199					General Statistics							
200					Number of Valid Samples	17					Number of Unique Samples	13
201												
202				Raw Statistics						Log-transformed Statistics		
203					Minimum	150					Minimum of Log Data	5.011
204					Maximum	2800					Maximum of Log Data	7.937
205					Mean	1305					Mean of log Data	6.988
206					Median	1300					SD of log Data	0.72
207					SD	696.5						
208					Coefficient of Variation	0.534						
209					Skewness	0.513						
210												
211					Relevant UCL Statistics							
212				Normal Distribution Test						Lognormal Distribution Test		

	A	B	C	D	E	F	G	H	I	J	K	L
213					Shapiro Wilk Test Statistic	0.961				Shapiro Wilk Test Statistic		0.879
214					Shapiro Wilk Critical Value	0.892				Shapiro Wilk Critical Value		0.892
215				**Data appear Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
216												
217				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
218					95% Student's-t UCL	1600					95% H-UCL	2121
219				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	2493
220					95% Adjusted-CLT UCL	1605					97.5% Chebyshev (MVUE) UCL	2976
221					95% Modified-t UCL	1603					99% Chebyshev (MVUE) UCL	3923
222												
223				**Gamma Distribution Test**					**Nonparametric Test**			
224					k star (bias corrected)	2.39			**Data appear Normal at 5% Significance Level**			
225					Theta Star	545.9						
226					nu star	81.26						
227					Approximate Chi Square Value (.05)	61.49			**Nonparametric Statistics**			
228					Adjusted Level of Significance	0.0346					95% CLT UCL	1583
229					Adjusted Chi Square Value	59.69					95% Jackknife UCL	1600
230											95% Standard Bootstrap UCL	1569
231					Anderson-Darling Test Statistic	0.394					95% Bootstrap-t UCL	1618
232					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	1645
233					Kolmogorov-Smirnov Test Statistic	0.175					95% Percentile Bootstrap UCL	1572
234					Kolmogorov-Smirnov 5% Critical Value	0.211					95% BCA Bootstrap UCL	1589
235				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	2041
236											97.5% Chebyshev(Mean, Sd) UCL	2360
237				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2986
238					95% Approximate Gamma UCL	1724						
239					95% Adjusted Gamma UCL	1776						
240												
241				**Potential UCL to Use**							Use 95% Student's-t UCL	1600
242												
243												
244	**Phenanthrene**											
245												
246					**General Statistics**							
247					Number of Valid Samples	17					Number of Unique Samples	14
248												
249				**Raw Statistics**					**Log-transformed Statistics**			
250					Minimum	150					Minimum of Log Data	5.011
251					Maximum	15000					Maximum of Log Data	9.616
252					Mean	2958					Mean of log Data	7.46
253					Median	1800					SD of log Data	1.083
254					SD	3769						
255					Coefficient of Variation	1.274						
256					Skewness	2.592						
257												
258					**Relevant UCL Statistics**							
259				**Normal Distribution Test**					**Lognormal Distribution Test**			
260					Shapiro Wilk Test Statistic	0.621					Shapiro Wilk Test Statistic	0.918
261					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
262				**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
263												
264				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
265					95% Student's-t UCL	4554					95% H-UCL	6676

	A	B	C	D	E	F	G	H	I	J	K	L
266	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	6758
267					95% Adjusted-CLT UCL	5076					97.5% Chebyshev (MVUE) UCL	8398
268					95% Modified-t UCL	4650					99% Chebyshev (MVUE) UCL	11621
269												
270	**Gamma Distribution Test**						**Nonparametric Test**					
271					k star (bias corrected)	0.924	**Data appear Lognormal at 5% Significance Level**					
272					Theta Star	3201						
273					nu star	31.42						
274					Approximate Chi Square Value (.05)	19.61	**Nonparametric Statistics**					
275					Adjusted Level of Significance	0.0346					95% CLT UCL	4462
276					Adjusted Chi Square Value	18.64					95% Jackknife UCL	4554
277											95% Standard Bootstrap UCL	4418
278					Anderson-Darling Test Statistic	1.082					95% Bootstrap-t UCL	7662
279					Anderson-Darling 5% Critical Value	0.764					95% Hall's Bootstrap UCL	11688
280					Kolmogorov-Smirnov Test Statistic	0.253					95% Percentile Bootstrap UCL	4402
281					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	5304
282	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	6942
283											97.5% Chebyshev(Mean, Sd) UCL	8666
284	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	12053
285					95% Approximate Gamma UCL	4739						
286					95% Adjusted Gamma UCL	4987						
287												
288	**Potential UCL to Use**										Use 95% Chebyshev (MVUE) UCL	6758
289												
290												
291	**Aroclor-1260**											
292												
293					**General Statistics**							
294					Number of Valid Samples	17					Number of Detected Data	12
295					Number of Unique Samples	11					Number of Non-Detect Data	5
296											Percent Non-Detects	29.41%
297												
298	**Raw Statistics**						**Log-transformed Statistics**					
299					Minimum Detected	140					Minimum Detected	4.942
300					Maximum Detected	550					Maximum Detected	6.31
301					Mean of Detected	371.3					Mean of Detected	5.862
302					SD of Detected	113.9					SD of Detected	0.373
303					Minimum Non-Detect	35					Minimum Non-Detect	3.555
304					Maximum Non-Detect	39					Maximum Non-Detect	3.664
305												
306	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	5
307	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	12
308	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	29.41%
309												
310					**UCL Statistics**							
311	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
312					Shapiro Wilk Test Statistic	0.969					Shapiro Wilk Test Statistic	0.883
313					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
314	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
315												
316	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
317					DL/2 Substitution Method						DL/2 Substitution Method	
318					Mean	267.5					Mean	4.997

	A	B	C	D	E	F	G	H	I	J	K	L
319					SD	190.6					SD	1.415
320					95% DL/2 (t) UCL	348.3					95% H-Stat (DL/2) UCL	829.1
321												
322					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
323					Mean	233.7					Mean in Log Scale	5.626
324					SD	240					SD in Log Scale	0.489
325					95% MLE (t) UCL	335.3					Mean in Original Scale	308.6
326					95% MLE (Tiku) UCL	344.8					SD in Original Scale	137.7
327											95% Percentile Bootstrap UCL	361.7
328											95% BCA Bootstrap UCL	366
329												
330				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
331					k star (bias corrected)	6.983				**Data appear Normal at 5% Significance Level**		
332					Theta Star	53.17						
333					nu star	167.6						
334												
335					A-D Test Statistic	0.416				**Nonparametric Statistics**		
336					5% A-D Critical Value	0.731					Kaplan-Meier (KM) Method	
337					K-S Test Statistic	0.731					Mean	303.2
338					5% K-S Critical Value	0.245					SD	139.6
339				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	35.37
340											95% KM (t) UCL	365
341				**Assuming Gamma Distribution**							95% KM (z) UCL	361.4
342					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	364.3
343					Minimum	116.8					95% KM (bootstrap t) UCL	356.5
344					Maximum	550					95% KM (BCA) UCL	396.8
345					Mean	314.7					95% KM (percentile) UCL	384.4
346					Median	300					95% KM (Chebyshev) UCL	457.4
347					SD	132.4					97.5% KM (Chebyshev) UCL	524.1
348					k star	4.471					99% KM (Chebyshev) UCL	655.1
349					Theta star	70.4						
350					Nu star	152				**Potential UCLs to Use**		
351					AppChi2	124.5					95% KM (t) UCL	365
352					95% Gamma Approximate UCL	384.2					95% KM (Percentile Bootstrap) UCL	384.4
353					95% Adjusted Gamma UCL	392.5						
354												
355												
356	**Dieldrin**											
357												
358					**General Statistics**							
359					Number of Valid Samples	17					Number of Detected Data	16
360					Number of Unique Samples	16					Number of Non-Detect Data	1
361											Percent Non-Detects	5.88%
362												
363				**Raw Statistics**						**Log-transformed Statistics**		
364					Minimum Detected	3.1					Minimum Detected	1.131
365					Maximum Detected	310					Maximum Detected	5.737
366					Mean of Detected	55.09					Mean of Detected	3.253
367					SD of Detected	79.21					SD of Detected	1.3
368					Minimum Non-Detect	3.5					Minimum Non-Detect	1.253
369					Maximum Non-Detect	3.5					Maximum Non-Detect	1.253
370												
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	**UCL Statistics**											
373	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
374					Shapiro Wilk Test Statistic	0.656				Shapiro Wilk Test Statistic		0.98
375					5% Shapiro Wilk Critical Value	0.887				5% Shapiro Wilk Critical Value		0.887
376	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
377												
378	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
379					DL/2 Substitution Method					DL/2 Substitution Method		
380					Mean	51.96				Mean		3.094
381					SD	77.78				SD		1.418
382					95% DL/2 (t) UCL	84.89				95% H-Stat (DL/2) UCL		174.4
383												
384					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
385					Mean	42.09				Mean in Log Scale		3.127
386					SD	86.53				SD in Log Scale		1.362
387					95% MLE (t) UCL	78.73				Mean in Original Scale		52.03
388					95% MLE (Tiku) UCL	77.86				SD in Original Scale		77.73
389										95% Percentile Bootstrap UCL		83.95
390										95% BCA Bootstrap UCL		94.96
391												
392	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
393					k star (bias corrected)	0.681	**Data appear Gamma Distributed at 5% Significance Level**					
394					Theta Star	80.93						
395					nu star	21.78						
396												
397					A-D Test Statistic	0.402	**Nonparametric Statistics**					
398					5% A-D Critical Value	0.773				Kaplan-Meier (KM) Method		
399					K-S Test Statistic	0.773				Mean		52.04
400					5% K-S Critical Value	0.223				SD		75.4
401	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		18.89
402										95% KM (t) UCL		85.01
403	**Assuming Gamma Distribution**									95% KM (z) UCL		83.11
404					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		84.95
405					Minimum	0				95% KM (bootstrap t) UCL		137.3
406					Maximum	310				95% KM (BCA) UCL		88.29
407					Mean	51.48				95% KM (percentile) UCL		84.98
408					Median	21				95% KM (Chebyshev) UCL		134.4
409					SD	78.1				97.5% KM (Chebyshev) UCL		170
410					k star	0.173				99% KM (Chebyshev) UCL		240
411					Theta star	297.4						
412					Nu star	5.886	**Potential UCLs to Use**					
413					AppChi2	1.582				95% KM (Chebyshev) UCL		134.4
414					95% Gamma Approximate UCL	191.6						
415					95% Adjusted Gamma UCL	222.7						
416												
417												
418	**Aluminum**											
419												
420	**General Statistics**											
421					Number of Valid Samples	20				Number of Unique Samples		18
422												
423	**Raw Statistics**						**Log-transformed Statistics**					
424					Minimum	3380				Minimum of Log Data		8.126

	A	B	C	D	E	F	G	H	I	J	K	L
425					Maximum	16300				Maximum of Log Data		9.699
426					Mean	8969				Mean of log Data		8.98
427					Median	9490				SD of log Data		0.525
428					SD	4242						
429					Coefficient of Variation	0.473						
430					Skewness	0.19						
431												
432					**Relevant UCL Statistics**							
433				**Normal Distribution Test**					**Lognormal Distribution Test**			
434					Shapiro Wilk Test Statistic	0.918				Shapiro Wilk Test Statistic		0.91
435					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
436				**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**			
437												
438				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
439					95% Student's-t UCL	10609				95% H-UCL		11628
440				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		13852
441					95% Adjusted-CLT UCL	10572				97.5% Chebyshev (MVUE) UCL		15933
442					95% Modified-t UCL	10615				99% Chebyshev (MVUE) UCL		20020
443												
444				**Gamma Distribution Test**					**Nonparametric Test**			
445					k star (bias corrected)	3.664			**Data appear Normal at 5% Significance Level**			
446					Theta Star	2448						
447					nu star	146.6						
448					Approximate Chi Square Value (.05)	119.6			**Nonparametric Statistics**			
449					Adjusted Level of Significance	0.038				95% CLT UCL		10529
450					Adjusted Chi Square Value	117.7				95% Jackknife UCL		10609
451										95% Standard Bootstrap UCL		10490
452					Anderson-Darling Test Statistic	0.683				95% Bootstrap-t UCL		10556
453					Anderson-Darling 5% Critical Value	0.745				95% Hall's Bootstrap UCL		10441
454					Kolmogorov-Smirnov Test Statistic	0.211				95% Percentile Bootstrap UCL		10531
455					Kolmogorov-Smirnov 5% Critical Value	0.195				95% BCA Bootstrap UCL		10496
456				**Data follow Appr. Gamma Distribution at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		13103
457										97.5% Chebyshev(Mean, Sd) UCL		14892
458				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		18406
459					95% Approximate Gamma UCL	10992						
460					95% Adjusted Gamma UCL	11172						
461												
462				**Potential UCL to Use**						Use 95% Student's-t UCL		10609
463												
464												
465	**Arsenic**											
466												
467					**General Statistics**							
468					Number of Valid Samples	20				Number of Unique Samples		20
469												
470				**Raw Statistics**					**Log-transformed Statistics**			
471					Minimum	3.3				Minimum of Log Data		1.194
472					Maximum	27.7				Maximum of Log Data		3.321
473					Mean	13.73				Mean of log Data		2.445
474					Median	14.55				SD of log Data		0.652
475					SD	7.318						
476					Coefficient of Variation	0.533						
477					Skewness	0.142						

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	**Relevant UCL Statistics**											
480	**Normal Distribution Test**						**Lognormal Distribution Test**					
481					Shapiro Wilk Test Statistic	0.946				Shapiro Wilk Test Statistic		0.912
482					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
483	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
484												
485	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
486					95% Student's-t UCL	16.55				95% H-UCL		19.69
487	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		23.57
488					95% Adjusted-CLT UCL	16.47				97.5% Chebyshev (MVUE) UCL		27.67
489					95% Modified-t UCL	16.56				99% Chebyshev (MVUE) UCL		35.73
490												
491	**Gamma Distribution Test**						**Nonparametric Test**					
492					k star (bias corrected)	2.605	**Data appear Normal at 5% Significance Level**					
493					Theta Star	5.268						
494					nu star	104.2						
495					Approximate Chi Square Value (.05)	81.65	**Nonparametric Statistics**					
496					Adjusted Level of Significance	0.038				95% CLT UCL		16.42
497					Adjusted Chi Square Value	80.08				95% Jackknife UCL		16.55
498										95% Standard Bootstrap UCL		16.33
499					Anderson-Darling Test Statistic	0.587				95% Bootstrap-t UCL		16.67
500					Anderson-Darling 5% Critical Value	0.747				95% Hall's Bootstrap UCL		16.52
501					Kolmogorov-Smirnov Test Statistic	0.145				95% Percentile Bootstrap UCL		16.18
502					Kolmogorov-Smirnov 5% Critical Value	0.195				95% BCA Bootstrap UCL		16.36
503	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		20.86
504										97.5% Chebyshev(Mean, Sd) UCL		23.94
505	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		30.01
506					95% Approximate Gamma UCL	17.52						
507					95% Adjusted Gamma UCL	17.86						
508												
509	**Potential UCL to Use**									Use 95% Student's-t UCL		16.55
510												
511												
512	**Barium**											
513												
514	**General Statistics**											
515					Number of Valid Samples	20				Number of Detected Data		19
516					Number of Unique Samples	19				Number of Non-Detect Data		1
517										Percent Non-Detects		5.00%
518												
519	**Raw Statistics**						**Log-transformed Statistics**					
520					Minimum Detected	21				Minimum Detected		3.045
521					Maximum Detected	546				Maximum Detected		6.303
522					Mean of Detected	166.3				Mean of Detected		4.855
523					SD of Detected	118.4				SD of Detected		0.807
524					Minimum Non-Detect	43				Minimum Non-Detect		3.761
525					Maximum Non-Detect	43				Maximum Non-Detect		3.761
526												
527												
528	**UCL Statistics**											
529	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
530					Shapiro Wilk Test Statistic	0.85				Shapiro Wilk Test Statistic		0.937

	A	B	C	D	E	F	G	H	I	J	K	L
531					5% Shapiro Wilk Critical Value	0.901					5% Shapiro Wilk Critical Value	0.901
532	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
533												
534	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
535					DL/2 Substitution Method						DL/2 Substitution Method	
536					Mean	159.1					Mean	4.765
537					SD	119.7					SD	0.881
538					95% DL/2 (t) UCL	205.4					95% H-Stat (DL/2) UCL	266.1
539												
540					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
541					Mean	151					Mean in Log Scale	4.787
542					SD	129.2					SD in Log Scale	0.841
543					95% MLE (t) UCL	201					Mean in Original Scale	159.7
544					95% MLE (Tiku) UCL	200.9					SD in Original Scale	119
545											95% Percentile Bootstrap UCL	203.5
546											95% BCA Bootstrap UCL	213
547												
548	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
549					k star (bias corrected)	1.788	**Data appear Gamma Distributed at 5% Significance Level**					
550					Theta Star	93.03						
551					nu star	67.94						
552												
553					A-D Test Statistic	0.365	**Nonparametric Statistics**					
554					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
555					K-S Test Statistic	0.752					Mean	159.3
556					5% K-S Critical Value	0.201					SD	116.4
557	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	26.75
558											95% KM (t) UCL	205.6
559	**Assuming Gamma Distribution**										95% KM (z) UCL	203.3
560					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	205.5
561					Minimum	0.724					95% KM (bootstrap t) UCL	222.7
562					Maximum	546					95% KM (BCA) UCL	206.3
563					Mean	158.5					95% KM (percentile) UCL	203.4
564					Median	152					95% KM (Chebyshev) UCL	275.9
565					SD	120.5					97.5% KM (Chebyshev) UCL	326.4
566					k star	1.089					99% KM (Chebyshev) UCL	425.5
567					Theta star	145.6						
568					Nu star	43.57	**Potential UCLs to Use**					
569					AppChi2	29.43					95% KM (Chebyshev) UCL	275.9
570					95% Gamma Approximate UCL	234.7						
571					95% Adjusted Gamma UCL	242.3						
572												
573												
574	**Cadmium**											
575												
576	**General Statistics**											
577					Number of Valid Samples	20					Number of Unique Samples	19
578												
579	**Raw Statistics**						**Log-transformed Statistics**					
580					Minimum	0.13					Minimum of Log Data	-2.04
581					Maximum	18.7					Maximum of Log Data	2.929
582					Mean	7.014					Mean of log Data	1.244
583					Median	6.45					SD of log Data	1.504

	A	B	C	D	E	F	G	H	I	J	K	L
584					SD	6.117						
585					Coefficient of Variation	0.872						
586					Skewness	0.412						
587												
588					**Relevant UCL Statistics**							
589				**Normal Distribution Test**						**Lognormal Distribution Test**		
590					Shapiro Wilk Test Statistic	0.895				Shapiro Wilk Test Statistic		0.882
591					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
592				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
593												
594				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
595					95% Student's-t UCL	9.379				95% H-UCL		34.33
596				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		26.61
597					95% Adjusted-CLT UCL	9.398				97.5% Chebyshev (MVUE) UCL		33.95
598					95% Modified-t UCL	9.4				99% Chebyshev (MVUE) UCL		48.35
599												
600				**Gamma Distribution Test**						**Nonparametric Test**		
601					k star (bias corrected)	0.745				**Data appear Gamma Distributed at 5% Significance Level**		
602					Theta Star	9.409						
603					nu star	29.82						
604					Approximate Chi Square Value (.05)	18.35				**Nonparametric Statistics**		
605					Adjusted Level of Significance	0.038				95% CLT UCL		9.264
606					Adjusted Chi Square Value	17.64				95% Jackknife UCL		9.379
607										95% Standard Bootstrap UCL		9.171
608					Anderson-Darling Test Statistic	0.743				95% Bootstrap-t UCL		9.518
609					Anderson-Darling 5% Critical Value	0.775				95% Hall's Bootstrap UCL		9.342
610					Kolmogorov-Smirnov Test Statistic	0.186				95% Percentile Bootstrap UCL		9.175
611					Kolmogorov-Smirnov 5% Critical Value	0.201				95% BCA Bootstrap UCL		9.227
612				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		12.98
613										97.5% Chebyshev(Mean, Sd) UCL		15.56
614				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		20.62
615					95% Approximate Gamma UCL	11.4						
616					95% Adjusted Gamma UCL	11.86						
617												
618				**Potential UCL to Use**						Use 95% Approximate Gamma UCL		11.4
619												
620												
621	**Chromium**											
622												
623					**General Statistics**							
624					Number of Valid Samples	20				Number of Unique Samples		20
625												
626				**Raw Statistics**						**Log-transformed Statistics**		
627					Minimum	11				Minimum of Log Data		2.398
628					Maximum	349				Maximum of Log Data		5.855
629					Mean	144.5				Mean of log Data		4.424
630					Median	157				SD of log Data		1.24
631					SD	118.3						
632					Coefficient of Variation	0.818						
633					Skewness	0.253						
634												
635					**Relevant UCL Statistics**							
636				**Normal Distribution Test**						**Lognormal Distribution Test**		

	A	B	C	D	E	F	G	H	I	J	K	L
637					Shapiro Wilk Test Statistic	0.879				Shapiro Wilk Test Statistic		0.861
638					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
639				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
640												
641				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
642					95% Student's-t UCL	190.3					95% H-UCL	415.8
643				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	405.8
644					95% Adjusted-CLT UCL	189.6					97.5% Chebyshev (MVUE) UCL	508.2
645					95% Modified-t UCL	190.5					99% Chebyshev (MVUE) UCL	709.4
646												
647				**Gamma Distribution Test**					**Nonparametric Test**			
648					k star (bias corrected)	0.921			**Data Follow Appr. Gamma Distribution at 5% Significance Level**			
649					Theta Star	156.9						
650					nu star	36.85						
651					Approximate Chi Square Value (.05)	23.95			**Nonparametric Statistics**			
652					Adjusted Level of Significance	0.038					95% CLT UCL	188
653					Adjusted Chi Square Value	23.13					95% Jackknife UCL	190.3
654											95% Standard Bootstrap UCL	187.2
655					Anderson-Darling Test Statistic	1.017					95% Bootstrap-t UCL	193.2
656					Anderson-Darling 5% Critical Value	0.767					95% Hall's Bootstrap UCL	187.9
657					Kolmogorov-Smirnov Test Statistic	0.19					95% Percentile Bootstrap UCL	187.5
658					Kolmogorov-Smirnov 5% Critical Value	0.199					95% BCA Bootstrap UCL	188.6
659				**Data follow Appr. Gamma Distribution at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	259.8
660											97.5% Chebyshev(Mean, Sd) UCL	309.7
661				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	407.6
662					95% Approximate Gamma UCL	222.4						
663					95% Adjusted Gamma UCL	230.2						
664												
665				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	222.4
666												
667												
668	**Copper**											
669												
670					**General Statistics**							
671					Number of Valid Samples	20					Number of Unique Samples	18
672												
673				**Raw Statistics**					**Log-transformed Statistics**			
674					Minimum	22					Minimum of Log Data	3.091
675					Maximum	831					Maximum of Log Data	6.723
676					Mean	227.1					Mean of log Data	4.979
677					Median	233.5					SD of log Data	1.101
678					SD	194.2						
679					Coefficient of Variation	0.855						
680					Skewness	1.547						
681												
682					**Relevant UCL Statistics**							
683				**Normal Distribution Test**					**Lognormal Distribution Test**			
684					Shapiro Wilk Test Statistic	0.854					Shapiro Wilk Test Statistic	0.895
685					Shapiro Wilk Critical Value	0.905					Shapiro Wilk Critical Value	0.905
686				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
687												
688				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
689					95% Student's-t UCL	302.2					95% H-UCL	532.3

	A	B	C	D	E	F	G	H	I	J	K	L
690	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	565.5
691					95% Adjusted-CLT UCL	314.6					97.5% Chebyshev (MVUE) UCL	699.9
692					95% Modified-t UCL	304.7					99% Chebyshev (MVUE) UCL	964
693												
694	**Gamma Distribution Test**						**Nonparametric Test**					
695					k star (bias corrected)	1.106	**Data appear Gamma Distributed at 5% Significance Level**					
696					Theta Star	205.3						
697					nu star	44.24						
698					Approximate Chi Square Value (.05)	29.99	**Nonparametric Statistics**					
699					Adjusted Level of Significance	0.038					95% CLT UCL	298.5
700					Adjusted Chi Square Value	29.06					95% Jackknife UCL	302.2
701											95% Standard Bootstrap UCL	298
702					Anderson-Darling Test Statistic	0.564					95% Bootstrap-t UCL	321.3
703					Anderson-Darling 5% Critical Value	0.763					95% Hall's Bootstrap UCL	354.2
704					Kolmogorov-Smirnov Test Statistic	0.177					95% Percentile Bootstrap UCL	303.9
705					Kolmogorov-Smirnov 5% Critical Value	0.198					95% BCA Bootstrap UCL	321
706	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	416.4
707											97.5% Chebyshev(Mean, Sd) UCL	498.3
708	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	659.2
709					95% Approximate Gamma UCL	335						
710					95% Adjusted Gamma UCL	345.7						
711												
712	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	335
713												
714												
715	**Iron**											
716												
717					**General Statistics**							
718					Number of Valid Samples	20					Number of Unique Samples	20
719												
720	**Raw Statistics**						**Log-transformed Statistics**					
721					Minimum	7600					Minimum of Log Data	8.936
722					Maximum	38800					Maximum of Log Data	10.57
723					Mean	20644					Mean of log Data	9.805
724					Median	21350					SD of log Data	0.544
725					SD	10106						
726					Coefficient of Variation	0.49						
727					Skewness	0.238						
728												
729					**Relevant UCL Statistics**							
730	**Normal Distribution Test**						**Lognormal Distribution Test**					
731					Shapiro Wilk Test Statistic	0.918					Shapiro Wilk Test Statistic	0.904
732					Shapiro Wilk Critical Value	0.905					Shapiro Wilk Critical Value	0.905
733	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
734												
735	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
736					95% Student's-t UCL	24551					95% H-UCL	27109
737	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	32349
738					95% Adjusted-CLT UCL	24490					97.5% Chebyshev (MVUE) UCL	37332
739					95% Modified-t UCL	24572					99% Chebyshev (MVUE) UCL	47120
740												
741	**Gamma Distribution Test**						**Nonparametric Test**					
742					k star (bias corrected)	3.426	**Data appear Normal at 5% Significance Level**					

	A	B	C	D	E	F	G	H	I	J	K	L
743					Theta Star	6026						
744					nu star	137						
745					Approximate Chi Square Value (.05)	111	**Nonparametric Statistics**					
746					Adjusted Level of Significance	0.038					95% CLT UCL	24361
747					Adjusted Chi Square Value	109.1					95% Jackknife UCL	24551
748											95% Standard Bootstrap UCL	24225
749					Anderson-Darling Test Statistic	0.704					95% Bootstrap-t UCL	24554
750					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	24286
751					Kolmogorov-Smirnov Test Statistic	0.171					95% Percentile Bootstrap UCL	24391
752					Kolmogorov-Smirnov 5% Critical Value	0.195					95% BCA Bootstrap UCL	24320
753	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	30494
754											97.5% Chebyshev(Mean, Sd) UCL	34756
755			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	43128
756					95% Approximate Gamma UCL	25489						
757					95% Adjusted Gamma UCL	25921						
758												
759			**Potential UCL to Use**								Use 95% Student's-t UCL	24551
760												
761												
762	**Lead**											
763												
764					**General Statistics**							
765					Number of Valid Samples	20					Number of Unique Samples	20
766												
767			**Raw Statistics**				**Log-transformed Statistics**					
768					Minimum	28					Minimum of Log Data	3.332
769					Maximum	2380					Maximum of Log Data	7.775
770					Mean	393.8					Mean of log Data	5.463
771					Median	261					SD of log Data	1.036
772					SD	528.6						
773					Coefficient of Variation	1.342						
774					Skewness	3.229						
775												
776					**Relevant UCL Statistics**							
777			**Normal Distribution Test**				**Lognormal Distribution Test**					
778					Shapiro Wilk Test Statistic	0.569					Shapiro Wilk Test Statistic	0.936
779					Shapiro Wilk Critical Value	0.905					Shapiro Wilk Critical Value	0.905
780			**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
781												
782			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
783					95% Student's-t UCL	598.2					95% H-UCL	755.2
784			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	828.1
785					95% Adjusted-CLT UCL	679.4					97.5% Chebyshev (MVUE) UCL	1019
786					95% Modified-t UCL	612.4					99% Chebyshev (MVUE) UCL	1393
787												
788			**Gamma Distribution Test**				**Nonparametric Test**					
789					k star (bias corrected)	0.978	**Data appear Lognormal at 5% Significance Level**					
790					Theta Star	402.6						
791					nu star	39.12						
792					Approximate Chi Square Value (.05)	25.8	**Nonparametric Statistics**					
793					Adjusted Level of Significance	0.038					95% CLT UCL	588.2
794					Adjusted Chi Square Value	24.94					95% Jackknife UCL	598.2
795											95% Standard Bootstrap UCL	578.2

	A	B	C	D	E	F	G	H	I	J	K	L
796					Anderson-Darling Test Statistic	0.96				95% Bootstrap-t UCL		1075
797					Anderson-Darling 5% Critical Value	0.766				95% Hall's Bootstrap UCL		1617
798					Kolmogorov-Smirnov Test Statistic	0.225				95% Percentile Bootstrap UCL		605.9
799					Kolmogorov-Smirnov 5% Critical Value	0.199				95% BCA Bootstrap UCL		692.7
800					**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		909
801										97.5% Chebyshev(Mean, Sd) UCL		1132
802					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL		1570
803					95% Approximate Gamma UCL	597.3						
804					95% Adjusted Gamma UCL	617.7						
805												
806					**Potential UCL to Use**					Use 95% Chebyshev (MVUE) UCL		828.1
807												
808												
809	**Manganese**											
810												
811					**General Statistics**							
812					Number of Valid Samples	20				Number of Unique Samples		19
813												
814					**Raw Statistics**					**Log-transformed Statistics**		
815					Minimum	80				Minimum of Log Data		4.382
816					Maximum	1940				Maximum of Log Data		7.57
817					Mean	652.1				Mean of log Data		6.059
818					Median	438				SD of log Data		0.995
819					SD	565.3						
820					Coefficient of Variation	0.867						
821					Skewness	0.904						
822												
823					**Relevant UCL Statistics**							
824					**Normal Distribution Test**					**Lognormal Distribution Test**		
825					Shapiro Wilk Test Statistic	0.871				Shapiro Wilk Test Statistic		0.943
826					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
827					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
828												
829					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
830					95% Student's-t UCL	870.6				95% H-UCL		1268
831					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL		1414
832					95% Adjusted-CLT UCL	887.3				97.5% Chebyshev (MVUE) UCL		1732
833					95% Modified-t UCL	874.9				99% Chebyshev (MVUE) UCL		2358
834												
835					**Gamma Distribution Test**					**Nonparametric Test**		
836					k star (bias corrected)	1.164				**Data appear Gamma Distributed at 5% Significance Level**		
837					Theta Star	560.3						
838					nu star	46.55						
839					Approximate Chi Square Value (.05)	31.89				**Nonparametric Statistics**		
840					Adjusted Level of Significance	0.038				95% CLT UCL		860
841					Adjusted Chi Square Value	30.94				95% Jackknife UCL		870.6
842										95% Standard Bootstrap UCL		855.9
843					Anderson-Darling Test Statistic	0.483				95% Bootstrap-t UCL		905.3
844					Anderson-Darling 5% Critical Value	0.761				95% Hall's Bootstrap UCL		877.4
845					Kolmogorov-Smirnov Test Statistic	0.136				95% Percentile Bootstrap UCL		868.2
846					Kolmogorov-Smirnov 5% Critical Value	0.198				95% BCA Bootstrap UCL		895.1
847					**Data appear Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL		1203
848										97.5% Chebyshev(Mean, Sd) UCL		1441

	A	B	C	D	E	F	G	H	I	J	K	L
849	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		1910
850					95% Approximate Gamma UCL	951.7						
851					95% Adjusted Gamma UCL	981.2						
852												
853	**Potential UCL to Use**									Use 95% Approximate Gamma UCL		951.7
854												
855												
856	**Mercury**											
857												
858	**General Statistics**											
859					Number of Valid Samples	20				Number of Unique Samples		19
860												
861	**Raw Statistics**						**Log-transformed Statistics**					
862					Minimum	0.03				Minimum of Log Data		-3.507
863					Maximum	1				Maximum of Log Data		0
864					Mean	0.493				Mean of log Data		-1.057
865					Median	0.52				SD of log Data		1.004
866					SD	0.33						
867					Coefficient of Variation	0.669						
868					Skewness	0.103						
869												
870	**Relevant UCL Statistics**											
871	**Normal Distribution Test**						**Lognormal Distribution Test**					
872					Shapiro Wilk Test Statistic	0.921				Shapiro Wilk Test Statistic		0.886
873					Shapiro Wilk Critical Value	0.905				Shapiro Wilk Critical Value		0.905
874	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
875												
876	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
877					95% Student's-t UCL	0.621				95% H-UCL		1.047
878	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		1.163
879					95% Adjusted-CLT UCL	0.616				97.5% Chebyshev (MVUE) UCL		1.426
880					95% Modified-t UCL	0.621				99% Chebyshev (MVUE) UCL		1.943
881												
882	**Gamma Distribution Test**						**Nonparametric Test**					
883					k star (bias corrected)	1.372	**Data appear Normal at 5% Significance Level**					
884					Theta Star	0.359						
885					nu star	54.88						
886					Approximate Chi Square Value (.05)	38.86	**Nonparametric Statistics**					
887					Adjusted Level of Significance	0.038				95% CLT UCL		0.614
888					Adjusted Chi Square Value	37.8				95% Jackknife UCL		0.621
889										95% Standard Bootstrap UCL		0.609
890					Anderson-Darling Test Statistic	0.628				95% Bootstrap-t UCL		0.621
891					Anderson-Darling 5% Critical Value	0.757				95% Hall's Bootstrap UCL		0.611
892					Kolmogorov-Smirnov Test Statistic	0.174				95% Percentile Bootstrap UCL		0.612
893					Kolmogorov-Smirnov 5% Critical Value	0.197				95% BCA Bootstrap UCL		0.607
894	**Data appear Gamma Distributed at 5% Significance Level**									95% Chebyshev(Mean, Sd) UCL		0.815
895										97.5% Chebyshev(Mean, Sd) UCL		0.954
896	**Assuming Gamma Distribution**									99% Chebyshev(Mean, Sd) UCL		1.227
897					95% Approximate Gamma UCL	0.696						
898					95% Adjusted Gamma UCL	0.716						
899												
900	**Potential UCL to Use**									Use 95% Student's-t UCL		0.621
901												

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903	**Thallium**											
904												
905						**General Statistics**						
906					Number of Valid Samples	20				Number of Detected Data		14
907					Number of Unique Samples	11				Number of Non-Detect Data		6
908										Percent Non-Detects		30.00%
909												
910				**Raw Statistics**						**Log-transformed Statistics**		
911					Minimum Detected	1.1				Minimum Detected		0.0953
912					Maximum Detected	3.3				Maximum Detected		1.194
913					Mean of Detected	1.886				Mean of Detected		0.588
914					SD of Detected	0.606				SD of Detected		0.316
915					Minimum Non-Detect	0.086				Minimum Non-Detect		-2.453
916					Maximum Non-Detect	1.1				Maximum Non-Detect		0.0953
917												
918	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		6
919	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		14
920	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		30.00%
921												
922						**UCL Statistics**						
923				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
924					Shapiro Wilk Test Statistic	0.931				Shapiro Wilk Test Statistic		0.962
925					5% Shapiro Wilk Critical Value	0.874				5% Shapiro Wilk Critical Value		0.874
926				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
927												
928				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
929					DL/2 Substitution Method					DL/2 Substitution Method		
930					Mean	1.402				Mean		-0.159
931					SD	0.918				SD		1.379
932					95% DL/2 (t) UCL	1.757				95% H-Stat (DL/2) UCL		4.906
933												
934					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
935					Mean	1.494				Mean in Log Scale		0.364
936					SD	0.805				SD in Log Scale		0.438
937					95% MLE (t) UCL	1.806				Mean in Original Scale		1.576
938					95% MLE (Tiku) UCL	1.826				SD in Original Scale		0.698
939										95% Percentile Bootstrap UCL		1.84
940										95% BCA Bootstrap UCL		1.85
941												
942				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
943					k star (bias corrected)	8.634				**Data appear Normal at 5% Significance Level**		
944					Theta Star	0.218						
945					nu star	241.7						
946												
947					A-D Test Statistic	0.298				**Nonparametric Statistics**		
948					5% A-D Critical Value	0.734				Kaplan-Meier (KM) Method		
949					K-S Test Statistic	0.734				Mean		1.65
950					5% K-S Critical Value	0.229				SD		0.607
951				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.141
952										95% KM (t) UCL		1.894
953				**Assuming Gamma Distribution**						95% KM (z) UCL		1.882
954					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.877

	A	B	C	D	E	F	G	H	I	J	K	L
955					Minimum	0.344					95% KM (bootstrap t) UCL	1.941
956					Maximum	3.3					95% KM (BCA) UCL	1.95
957					Mean	1.548					95% KM (percentile) UCL	1.91
958					Median	1.45					95% KM (Chebyshev) UCL	2.264
959					SD	0.741					97.5% KM (Chebyshev) UCL	2.53
960					k star	3.528					99% KM (Chebyshev) UCL	3.052
961					Theta star	0.439						
962					Nu star	141.1			**Potential UCLs to Use**			
963					AppChi2	114.7					95% KM (t) UCL	1.894
964				95% Gamma Approximate UCL		1.906					95% KM (Percentile Bootstrap) UCL	1.91
965				95% Adjusted Gamma UCL		1.937						
966												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	H:\JCV\Puritan\2006\ucl data\fish\OU2_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Aluminum											
10												
11						General Statistics						
12						Number of Valid Samples	48			Number of Detected Data		10
13						Number of Unique Samples	10			Number of Non-Detect Data		38
14										Percent Non-Detects		79.17%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	1.4			Minimum Detected		0.336
18						Maximum Detected	5.6			Maximum Detected		1.723
19						Mean of Detected	2.26			Mean of Detected		0.731
20						SD of Detected	1.219			SD of Detected		0.391
21						Minimum Non-Detect	0.96			Minimum Non-Detect		-0.0408
22						Maximum Non-Detect	2			Maximum Non-Detect		0.693
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		43
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		5
26	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		89.58%
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.628			Shapiro Wilk Test Statistic		0.8
31						5% Shapiro Wilk Critical Value	0.842			5% Shapiro Wilk Critical Value		0.842
32				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
33												
34				Assuming Normal Distribution						Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	1.042			Mean		-0.125
37						SD	0.839			SD		0.516
38						95% DL/2 (t) UCL	1.245			95% H-Stat (DL/2) UCL		1.049
39												
40						Maximum Likelihood Estimate(MLE) Method				Robust ROS Method		
41						Mean	-0.938			Mean in Log Scale		-0.311
42						SD	2.287			SD in Log Scale		0.678
43						95% MLE (t) UCL	-0.384			Mean in Original Scale		0.95
44						95% MLE (Tiku) UCL	1.355			SD in Original Scale		0.89
45										95% Percentile Bootstrap UCL		1.168
46										95% BCA Bootstrap UCL		1.23
47												
48				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
49						k star (bias corrected)	4.318			Data do not follow a Discernable Distribution (0.05)		
50						Theta Star	0.523					
51						nu star	86.36					
52												
53						A-D Test Statistic	1.018			Nonparametric Statistics		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	0.729					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	0.729					Mean	1.584
56					5% K-S Critical Value	0.267					SD	0.632
57				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.0964
58											95% KM (t) UCL	1.746
59				**Assuming Gamma Distribution**							95% KM (z) UCL	1.743
60					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.713
61					Minimum	0					95% KM (bootstrap t) UCL	1.919
62					Maximum	5.6					95% KM (BCA) UCL	2.002
63					Mean	0.384					95% KM (percentile) UCL	1.877
64					Median	0					95% KM (Chebyshev) UCL	2.004
65					SD	1.004					97.5% KM (Chebyshev) UCL	2.186
66					k star	0.0679					99% KM (Chebyshev) UCL	2.543
67					Theta star	5.662						
68					Nu star	6.518					**Potential UCLs to Use**	
69					AppChi2	1.91					95% KM (t) UCL	1.746
70					95% Gamma Approximate UCL	1.312					95% KM (% Bootstrap) UCL	1.877
71					95% Adjusted Gamma UCL	1.366						
72												
73												
74	**Arsenic**											
75												
76					**General Statistics**							
77					Number of Valid Samples	48					Number of Detected Data	41
78					Number of Unique Samples	29					Number of Non-Detect Data	7
79											Percent Non-Detects	14.58%
80												
81				**Raw Statistics**							**Log-transformed Statistics**	
82					Minimum Detected	0.017					Minimum Detected	-4.075
83					Maximum Detected	0.1					Maximum Detected	-2.303
84					Mean of Detected	0.0427					Mean of Detected	-3.246
85					SD of Detected	0.0195					SD of Detected	0.431
86					Minimum Non-Detect	0.017					Minimum Non-Detect	-4.075
87					Maximum Non-Detect	0.02					Maximum Non-Detect	-3.912
88												
89	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	39
91	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	18.75%
92												
93					**UCL Statistics**							
94				**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**	
95					Shapiro Wilk Test Statistic	0.878					Shapiro Wilk Test Statistic	0.967
96					5% Shapiro Wilk Critical Value	0.941					5% Shapiro Wilk Critical Value	0.941
97				**Data not Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**	
98												
99				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
100					DL/2 Substitution Method						DL/2 Substitution Method	
101					Mean	0.0378					Mean	-3.457
102					SD	0.0216					SD	0.65
103					95% DL/2 (t) UCL	0.043					95% H-Stat (DL/2) UCL	0.0423
104												
105					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
106					Mean	0.0369					Mean in Log Scale	-3.384

	A	B	C	D	E	F	G	H	I	J	K	L
107					SD	0.0229					SD in Log Scale	0.523
108					95% MLE (t) UCL	0.0425					Mean in Original Scale	0.0387
109					95% MLE (Tiku) UCL	0.0426					SD in Original Scale	0.0205
110											95% Percentile Bootstrap UCL	0.0438
111											95% BCA Bootstrap UCL	0.0443
112												
113				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
114					k star (bias corrected)	5.215			**Data appear Gamma Distributed at 5% Significance Level**			
115					Theta Star	0.00818						
116					nu star	427.6						
117												
118					A-D Test Statistic	0.471			**Nonparametric Statistics**			
119					5% A-D Critical Value	0.751					Kaplan-Meier (KM) Method	
120					K-S Test Statistic	0.751					Mean	0.0389
121					5% K-S Critical Value	0.138					SD	0.02
122				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.00292
123											95% KM (t) UCL	0.0438
124				**Assuming Gamma Distribution**							95% KM (z) UCL	0.0437
125					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0436
126					Minimum	0.00148					95% KM (bootstrap t) UCL	0.0445
127					Maximum	0.1					95% KM (BCA) UCL	0.0444
128					Mean	0.0379					95% KM (percentile) UCL	0.0441
129					Median	0.038					95% KM (Chebyshev) UCL	0.0516
130					SD	0.0215					97.5% KM (Chebyshev) UCL	0.0571
131					k star	2.482					99% KM (Chebyshev) UCL	0.0679
132					Theta star	0.0153						
133					Nu star	238.3			**Potential UCLs to Use**			
134					AppChi2	203.5					95% KM (BCA) UCL	0.0444
135					95% Gamma Approximate UCL	0.0443						
136					95% Adjusted Gamma UCL	0.0446						
137												
138												
139	**Cadmium**											
140												
141					**General Statistics**							
142					Number of Valid Samples	48					Number of Detected Data	24
143					Number of Unique Samples	21					Number of Non-Detect Data	24
144											Percent Non-Detects	50.00%
145												
146				**Raw Statistics**					**Log-transformed Statistics**			
147					Minimum Detected	0.0067					Minimum Detected	-5.006
148					Maximum Detected	0.21					Maximum Detected	-1.561
149					Mean of Detected	0.0242					Mean of Detected	-4.15
150					SD of Detected	0.0405					SD of Detected	0.757
151					Minimum Non-Detect	0.0051					Minimum Non-Detect	-5.279
152					Maximum Non-Detect	0.0099					Maximum Non-Detect	-4.615
153												
154	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	32
155	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	16
156	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	66.67%
157												
158					**UCL Statistics**							
159				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			

	A	B	C	D	E	F	G	H	I	J	K	L
160					Shapiro Wilk Test Statistic	0.389				Shapiro Wilk Test Statistic		0.85
161					5% Shapiro Wilk Critical Value	0.916				5% Shapiro Wilk Critical Value		0.916
162					**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**		
163												
164					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
165					DL/2 Substitution Method					DL/2 Substitution Method		
166					Mean	0.014				Mean		-4.869
167					SD	0.0302				SD		0.916
168					95% DL/2 (t) UCL	0.0214				95% H-Stat (DL/2) UCL		0.0151
169												
170					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
171					Mean	-0.0232				Mean in Log Scale		-5.001
172					SD	0.0584				SD in Log Scale		1.036
173					95% MLE (t) UCL	-0.00909				Mean in Original Scale		0.0136
174					95% MLE (Tiku) UCL	0.0004104				SD in Original Scale		0.0303
175										95% Percentile Bootstrap UCL		0.0216
176										95% BCA Bootstrap UCL		0.0271
177												
178					**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**		
179					k star (bias corrected)	1.169				**Data do not follow a Discernable Distribution (0.05)**		
180					Theta Star	0.0207						
181					nu star	56.12						
182												
183					A-D Test Statistic	2.111				**Nonparametric Statistics**		
184					5% A-D Critical Value	0.766				Kaplan-Meier (KM) Method		
185					K-S Test Statistic	0.766				Mean		0.0156
186					5% K-S Critical Value	0.182				SD		0.0294
187					**Data not Gamma Distributed at 5% Significance Level**					SE of Mean		0.00433
188										95% KM (t) UCL		0.0228
189					**Assuming Gamma Distribution**					95% KM (z) UCL		0.0227
190					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		0.0227
191					Minimum	0				95% KM (bootstrap t) UCL		0.0399
192					Maximum	0.21				95% KM (BCA) UCL		0.0249
193					Mean	0.0108				95% KM (percentile) UCL		0.0235
194					Median	0				95% KM (Chebyshev) UCL		0.0344
195					SD	0.0312				97.5% KM (Chebyshev) UCL		0.0426
196					k star	0.0881				99% KM (Chebyshev) UCL		0.0586
197					Theta star	0.122						
198					Nu star	8.455				**Potential UCLs to Use**		
199					AppChi2	3.001				95% KM (t) UCL		0.0228
200					95% Gamma Approximate UCL	0.0303				95% KM (% Bootstrap) UCL		0.0235
201					95% Adjusted Gamma UCL	0.0313						
202												
203												
204	**Chromium**											
205												
206					**General Statistics**							
207					Number of Valid Samples	48				Number of Unique Samples		36
208												
209					**Raw Statistics**					**Log-transformed Statistics**		
210					Minimum	0.39				Minimum of Log Data		-0.942
211					Maximum	10				Maximum of Log Data		2.303
212					Mean	2.211				Mean of log Data		0.399

	A	B	C	D	E	F	G	H	I	J	K	L
213					Median	1.4					SD of log Data	0.865
214					SD	2.324						
215					Coefficient of Variation	1.051						
216					Skewness	2.292						
217												
218					Relevant UCL Statistics							
219			Normal Distribution Test						Lognormal Distribution Test			
220					Shapiro Wilk Test Statistic	0.701					Shapiro Wilk Test Statistic	0.945
221					Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947
222			Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level			
223												
224			Assuming Normal Distribution						Assuming Lognormal Distribution			
225					95% Student's-t UCL	2.774					95% H-UCL	2.855
226			95% UCLs (Adjusted for Skewness)								95% Chebyshev (MVUE) UCL	3.469
227					95% Adjusted-CLT UCL	2.881					97.5% Chebyshev (MVUE) UCL	4.043
228					95% Modified-t UCL	2.792					99% Chebyshev (MVUE) UCL	5.17
229												
230			Gamma Distribution Test						Nonparametric Test			
231					k star (bias corrected)	1.338			Data Follow Appr. Gamma Distribution at 5% Significance Level			
232					Theta Star	1.652						
233					nu star	128.5						
234					Approximate Chi Square Value (.05)	103.3			Nonparametric Statistics			
235					Adjusted Level of Significance	0.045					95% CLT UCL	2.762
236					Adjusted Chi Square Value	102.6					95% Jackknife UCL	2.774
237											95% Standard Bootstrap UCL	2.747
238					Anderson-Darling Test Statistic	1.257					95% Bootstrap-t UCL	2.98
239					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	2.935
240					Kolmogorov-Smirnov Test Statistic	0.119					95% Percentile Bootstrap UCL	2.803
241					Kolmogorov-Smirnov 5% Critical Value	0.13					95% BCA Bootstrap UCL	2.85
242			Data follow Appr. Gamma Distribution at 5% Significance Level								95% Chebyshev(Mean, Sd) UCL	3.673
243											97.5% Chebyshev(Mean, Sd) UCL	4.306
244			Assuming Gamma Distribution								99% Chebyshev(Mean, Sd) UCL	5.549
245					95% Approximate Gamma UCL	2.75						
246					95% Adjusted Gamma UCL	2.768						
247												
248			Potential UCL to Use								Use 95% Approximate Gamma UCL	2.75
249												
250												
251	Cobalt											
252												
253					General Statistics							
254					Number of Valid Samples	48					Number of Detected Data	46
255					Number of Unique Samples	28					Number of Non-Detect Data	2
256											Percent Non-Detects	4.17%
257												
258			Raw Statistics						Log-transformed Statistics			
259					Minimum Detected	0.008					Minimum Detected	-4.828
260					Maximum Detected	0.084					Maximum Detected	-2.477
261					Mean of Detected	0.0216					Mean of Detected	-4.034
262					SD of Detected	0.0169					SD of Detected	0.593
263					Minimum Non-Detect	0.0087					Minimum Non-Detect	-4.744
264					Maximum Non-Detect	0.0099					Maximum Non-Detect	-4.615
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	8
267	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	40
268	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	16.67%
269												
270						UCL Statistics						
271				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
272					Shapiro Wilk Test Statistic	0.716					Shapiro Wilk Test Statistic	0.913
273					5% Shapiro Wilk Critical Value	0.945					5% Shapiro Wilk Critical Value	0.945
274				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
275												
276				Assuming Normal Distribution						Assuming Lognormal Distribution		
277					DL/2 Substitution Method						DL/2 Substitution Method	
278					Mean	0.0209					Mean	-4.09
279					SD	0.0169					SD	0.64
280					95% DL/2 (t) UCL	0.025					95% H-Stat (DL/2) UCL	0.0243
281												
282					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
283					Mean	0.0193					Mean in Log Scale	-4.074
284					SD	0.0188					SD in Log Scale	0.611
285					95% MLE (t) UCL	0.0239					Mean in Original Scale	0.021
286					95% MLE (Tiku) UCL	0.0237					SD in Original Scale	0.0168
287											95% Percentile Bootstrap UCL	0.0253
288											95% BCA Bootstrap UCL	0.0263
289												
290				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
291					k star (bias corrected)	2.48				Data do not follow a Discernable Distribution (0.05)		
292					Theta Star	0.00873						
293					nu star	228.2						
294												
295					A-D Test Statistic	2.017				Nonparametric Statistics		
296					5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method	
297					K-S Test Statistic	0.758					Mean	0.0211
298					5% K-S Critical Value	0.132					SD	0.0166
299				Data not Gamma Distributed at 5% Significance Level							SE of Mean	0.00242
300											95% KM (t) UCL	0.0252
301				Assuming Gamma Distribution							95% KM (z) UCL	0.0251
302					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0252
303					Minimum	0					95% KM (bootstrap t) UCL	0.0267
304					Maximum	0.084					95% KM (BCA) UCL	0.0253
305					Mean	0.0198					95% KM (percentile) UCL	0.0251
306					Median	0.015					95% KM (Chebyshev) UCL	0.0317
307					SD	0.018					97.5% KM (Chebyshev) UCL	0.0362
308					k star	0.342					99% KM (Chebyshev) UCL	0.0452
309					Theta star	0.0577						
310					Nu star	32.88				Potential UCLs to Use		
311					AppChi2	20.77					95% KM (Chebyshev) UCL	0.0317
312					95% Gamma Approximate UCL	0.0313						
313					95% Adjusted Gamma UCL	0.0317						
314												
315												
316	Iron											
317												
318						General Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
319					Number of Valid Samples	48				Number of Unique Samples		27
320												
321				**Raw Statistics**						**Log-transformed Statistics**		
322					Minimum	3.9				Minimum of Log Data		1.361
323					Maximum	210				Maximum of Log Data		5.347
324					Mean	23.04				Mean of log Data		2.855
325					Median	17				SD of log Data		0.649
326					SD	29.66						
327					Coefficient of Variation	1.287						
328					Skewness	5.574						
329												
330					**Relevant UCL Statistics**							
331				**Normal Distribution Test**						**Lognormal Distribution Test**		
332					Shapiro Wilk Test Statistic	0.439				Shapiro Wilk Test Statistic		0.933
333					Shapiro Wilk Critical Value	0.947				Shapiro Wilk Critical Value		0.947
334				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
335												
336				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
337					95% Student's-t UCL	30.22				95% H-UCL		25.92
338				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		30.78
339					95% Adjusted-CLT UCL	33.76				97.5% Chebyshev (MVUE) UCL		34.86
340					95% Modified-t UCL	30.79				99% Chebyshev (MVUE) UCL		42.88
341												
342				**Gamma Distribution Test**						**Nonparametric Test**		
343					k star (bias corrected)	1.818				**Data do not follow a Discernable Distribution (0.05)**		
344					Theta Star	12.67						
345					nu star	174.5						
346					Approximate Chi Square Value (.05)	145				**Nonparametric Statistics**		
347					Adjusted Level of Significance	0.045				95% CLT UCL		30.08
348					Adjusted Chi Square Value	144.1				95% Jackknife UCL		30.22
349										95% Standard Bootstrap UCL		30.17
350					Anderson-Darling Test Statistic	2.387				95% Bootstrap-t UCL		40.64
351					Anderson-Darling 5% Critical Value	0.763				95% Hall's Bootstrap UCL		57.07
352					Kolmogorov-Smirnov Test Statistic	0.176				95% Percentile Bootstrap UCL		30.53
353					Kolmogorov-Smirnov 5% Critical Value	0.13				95% BCA Bootstrap UCL		35.37
354				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		41.7
355										97.5% Chebyshev(Mean, Sd) UCL		49.77
356				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		65.63
357					95% Approximate Gamma UCL	27.73						
358					95% Adjusted Gamma UCL	27.89						
359												
360				**Potential UCL to Use**						Use 95% Chebyshev (Mean, Sd) UCL		41.7
361												
362												
363	**Lead**											
364												
365					**General Statistics**							
366					Number of Valid Samples	48				Number of Detected Data		3
367					Number of Unique Samples	3				Number of Non-Detect Data		45
368										Percent Non-Detects		93.75%
369												
370				**Raw Statistics**						**Log-transformed Statistics**		
371					Minimum Detected	0.016				Minimum Detected		-4.135

	A	B	C	D	E	F	G	H	I	J	K	L
372					Maximum Detected	0.2					Maximum Detected	-1.609
373					Mean of Detected	0.0843					Mean of Detected	-3.014
374					SD of Detected	0.101					SD of Detected	1.286
375					Minimum Non-Detect	0.012					Minimum Non-Detect	-4.423
376					Maximum Non-Detect	0.02					Maximum Non-Detect	-3.912
377												
378	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	46
379	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	2
380	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	95.83%
381												
382					**UCL Statistics**							
383				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
384					Shapiro Wilk Test Statistic	0.834					Shapiro Wilk Test Statistic	0.964
385					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
386				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
387												
388				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
389					DL/2 Substitution Method						DL/2 Substitution Method	
390					Mean	0.0123					Mean	-4.785
391					SD	0.028					SD	0.553
392					95% DL/2 (t) UCL	0.0191					95% H-Stat (DL/2) UCL	0.0105
393												
394					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
395											Mean in Log Scale	-10.62
396											SD in Log Scale	3.334
397											Mean in Original Scale	0.00544
398											SD in Original Scale	0.0293
399											95% Percentile Bootstrap UCL	0.0135
400											95% BCA Bootstrap UCL	0.0183
401												
402				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
403					k star (bias corrected)	N/A				**Data appear Normal at 5% Significance Level**		
404					Theta Star	N/A						
405					nu star	N/A						
406												
407					A-D Test Statistic	0.351				**Nonparametric Statistics**		
408					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
409					K-S Test Statistic	N/A					Mean	0.0203
410					5% K-S Critical Value	N/A					SD	0.0264
411				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.00466
412											95% KM (t) UCL	0.0281
413				**Assuming Gamma Distribution**							95% KM (z) UCL	0.0279
414					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0344
415					Minimum	N/A					95% KM (bootstrap t) UCL	0.0437
416					Maximum	N/A					95% KM (BCA) UCL	1E+31
417					Mean	N/A					95% KM (percentile) UCL	0.2
418					Median	N/A					95% KM (Chebyshev) UCL	0.0406
419					SD	N/A					97.5% KM (Chebyshev) UCL	0.0494
420					k star	N/A					99% KM (Chebyshev) UCL	0.0667
421					Theta star	N/A						
422					Nu star	N/A				**Potential UCLs to Use**		
423					AppChi2	N/A					95% KM (t) UCL	0.0281
424					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.2

	A	B	C	D	E	F	G	H	I	J	K	L
425					95% Adjusted Gamma UCL	N/A						
426												
427												
428	Mercury											
429												
430					General Statistics							
431					Number of Valid Samples	48				Number of Unique Samples		33
432												
433				Raw Statistics						Log-transformed Statistics		
434					Minimum	0.027				Minimum of Log Data		-3.612
435					Maximum	0.19				Maximum of Log Data		-1.661
436					Mean	0.0931				Mean of log Data		-2.489
437					Median	0.0865				SD of log Data		0.508
438					SD	0.0428						
439					Coefficient of Variation	0.46						
440					Skewness	0.487						
441												
442					Relevant UCL Statistics							
443				Normal Distribution Test						Lognormal Distribution Test		
444					Shapiro Wilk Test Statistic	0.951				Shapiro Wilk Test Statistic		0.952
445					Shapiro Wilk Critical Value	0.947				Shapiro Wilk Critical Value		0.947
446				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
447												
448				Assuming Normal Distribution						Assuming Lognormal Distribution		
449					95% Student's-t UCL	0.104				95% H-UCL		0.109
450				95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL		0.126
451					95% Adjusted-CLT UCL	0.104				97.5% Chebyshev (MVUE) UCL		0.139
452					95% Modified-t UCL	0.104				99% Chebyshev (MVUE) UCL		0.166
453												
454				Gamma Distribution Test						Nonparametric Test		
455					k star (bias corrected)	4.22				Data appear Normal at 5% Significance Level		
456					Theta Star	0.0221						
457					nu star	405.2						
458					Approximate Chi Square Value (.05)	359.5				Nonparametric Statistics		
459					Adjusted Level of Significance	0.045				95% CLT UCL		0.103
460					Adjusted Chi Square Value	358.2				95% Jackknife UCL		0.104
461										95% Standard Bootstrap UCL		0.103
462					Anderson-Darling Test Statistic	0.264				95% Bootstrap-t UCL		0.104
463					Anderson-Darling 5% Critical Value	0.753				95% Hall's Bootstrap UCL		0.104
464					Kolmogorov-Smirnov Test Statistic	0.0937				95% Percentile Bootstrap UCL		0.103
465					Kolmogorov-Smirnov 5% Critical Value	0.128				95% BCA Bootstrap UCL		0.103
466				Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL		0.12
467										97.5% Chebyshev(Mean, Sd) UCL		0.132
468				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL		0.155
469					95% Approximate Gamma UCL	0.105						
470					95% Adjusted Gamma UCL	0.105						
471												
472				Potential UCL to Use						Use 95% Student's-t UCL		0.104
473												
474												
475	Nickel											
476												
477					General Statistics							

	A	B	C	D	E	F	G	H	I	J	K	L
478					Number of Valid Samples	48				Number of Unique Samples		38
479												
480				**Raw Statistics**						**Log-transformed Statistics**		
481					Minimum	0.095				Minimum of Log Data		-2.354
482					Maximum	5.4				Maximum of Log Data		1.686
483					Mean	1.132				Mean of log Data		-0.362
484					Median	0.74				SD of log Data		1.005
485					SD	1.261						
486					Coefficient of Variation	1.114						
487					Skewness	2.264						
488												
489					**Relevant UCL Statistics**							
490				**Normal Distribution Test**						**Lognormal Distribution Test**		
491					Shapiro Wilk Test Statistic	0.713				Shapiro Wilk Test Statistic		0.973
492					Shapiro Wilk Critical Value	0.947				Shapiro Wilk Critical Value		0.947
493				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
494												
495				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
496					95% Student's-t UCL	1.437				95% H-UCL		1.624
497				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		1.981
498					95% Adjusted-CLT UCL	1.495				97.5% Chebyshev (MVUE) UCL		2.347
499					95% Modified-t UCL	1.447				99% Chebyshev (MVUE) UCL		3.065
500												
501				**Gamma Distribution Test**						**Nonparametric Test**		
502					k star (bias corrected)	1.109				**Data appear Gamma Distributed at 5% Significance Level**		
503					Theta Star	1.02						
504					nu star	106.5						
505					Approximate Chi Square Value (.05)	83.66				**Nonparametric Statistics**		
506					Adjusted Level of Significance	0.045				95% CLT UCL		1.431
507					Adjusted Chi Square Value	83.04				95% Jackknife UCL		1.437
508										95% Standard Bootstrap UCL		1.43
509					Anderson-Darling Test Statistic	0.727				95% Bootstrap-t UCL		1.536
510					Anderson-Darling 5% Critical Value	0.775				95% Hall's Bootstrap UCL		1.513
511					Kolmogorov-Smirnov Test Statistic	0.115				95% Percentile Bootstrap UCL		1.456
512					Kolmogorov-Smirnov 5% Critical Value	0.131				95% BCA Bootstrap UCL		1.504
513				**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		1.925
514										97.5% Chebyshev(Mean, Sd) UCL		2.268
515				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		2.942
516					95% Approximate Gamma UCL	1.44						
517					95% Adjusted Gamma UCL	1.451						
518												
519				**Potential UCL to Use**						Use 95% Approximate Gamma UCL		1.44
520												
521												
522	**Selenium**											
523												
524					**General Statistics**							
525					Number of Valid Samples	48				Number of Unique Samples		28
526												
527				**Raw Statistics**						**Log-transformed Statistics**		
528					Minimum	0.29				Minimum of Log Data		-1.238
529					Maximum	0.67				Maximum of Log Data		-0.4
530					Mean	0.443				Mean of log Data		-0.837

	A	B	C	D	E	F	G	H	I	J	K	L
531					Median	0.425					SD of log Data	0.214
532					SD	0.096						
533					Coefficient of Variation	0.217						
534					Skewness	0.507						
535												
536					**Relevant UCL Statistics**							
537			**Normal Distribution Test**						**Lognormal Distribution Test**			
538					Shapiro Wilk Test Statistic	0.949					Shapiro Wilk Test Statistic	0.965
539					Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947
540			**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
541												
542			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
543					95% Student's-t UCL	0.466					95% H-UCL	0.467
544			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	0.503
545					95% Adjusted-CLT UCL	0.467					97.5% Chebyshev (MVUE) UCL	0.529
546					95% Modified-t UCL	0.466					99% Chebyshev (MVUE) UCL	0.58
547												
548			**Gamma Distribution Test**						**Nonparametric Test**			
549					k star (bias corrected)	20.91			**Data appear Normal at 5% Significance Level**			
550					Theta Star	0.0212						
551					nu star	2008						
552					Approximate Chi Square Value (.05)	1905			**Nonparametric Statistics**			
553					Adjusted Level of Significance	0.045					95% CLT UCL	0.466
554					Adjusted Chi Square Value	1902					95% Jackknife UCL	0.466
555											95% Standard Bootstrap UCL	0.465
556					Anderson-Darling Test Statistic	0.413					95% Bootstrap-t UCL	0.467
557					Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	0.468
558					Kolmogorov-Smirnov Test Statistic	0.0875					95% Percentile Bootstrap UCL	0.465
559					Kolmogorov-Smirnov 5% Critical Value	0.128					95% BCA Bootstrap UCL	0.465
560			**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	0.503
561											97.5% Chebyshev(Mean, Sd) UCL	0.529
562			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	0.581
563					95% Approximate Gamma UCL	0.467						
564					95% Adjusted Gamma UCL	0.467						
565												
566			**Potential UCL to Use**								Use 95% Student's-t UCL	0.466
567												
568												
569	**Vanadium**											
570												
571					**General Statistics**							
572					Number of Valid Samples	48					Number of Detected Data	21
573					Number of Unique Samples	17					Number of Non-Detect Data	27
574											Percent Non-Detects	56.25%
575												
576			**Raw Statistics**						**Log-transformed Statistics**			
577					Minimum Detected	0.039					Minimum Detected	-3.244
578					Maximum Detected	0.27					Maximum Detected	-1.309
579					Mean of Detected	0.078					Mean of Detected	-2.676
580					SD of Detected	0.0499					SD of Detected	0.472
581					Minimum Non-Detect	0.024					Minimum Non-Detect	-3.73
582					Maximum Non-Detect	0.049					Maximum Non-Detect	-3.016
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	33
585	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	15
586	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	68.75%
587												
588						UCL Statistics						
589				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
590					Shapiro Wilk Test Statistic	0.661					Shapiro Wilk Test Statistic	0.897
591					5% Shapiro Wilk Critical Value	0.908					5% Shapiro Wilk Critical Value	0.908
592				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
593												
594				Assuming Normal Distribution						Assuming Lognormal Distribution		
595					DL/2 Substitution Method						DL/2 Substitution Method	
596					Mean	0.0434					Mean	-3.493
597					SD	0.0449					SD	0.807
598					95% DL/2 (t) UCL	0.0543					95% H-Stat (DL/2) UCL	0.0454
599												
600					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
601					Mean	0.00646					Mean in Log Scale	-3.384
602					SD	0.0795					SD in Log Scale	0.726
603					95% MLE (t) UCL	0.0257					Mean in Original Scale	0.0454
604					95% MLE (Tiku) UCL	0.0393					SD in Original Scale	0.0437
605											95% Percentile Bootstrap UCL	0.0559
606											95% BCA Bootstrap UCL	0.0601
607												
608				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
609					k star (bias corrected)	3.611				Data Follow Appr. Gamma Distribution at 5% Significance Level		
610					Theta Star	0.0216						
611					nu star	151.7						
612												
613					A-D Test Statistic	0.819				Nonparametric Statistics		
614					5% A-D Critical Value	0.747					Kaplan-Meier (KM) Method	
615					K-S Test Statistic	0.747					Mean	0.0561
616					5% K-S Critical Value	0.19					SD	0.0375
617				Data follow approximate Gamma Distribution at 5% Significance Level							SE of Mean	0.00555
618											95% KM (t) UCL	0.0654
619				Assuming Gamma Distribution							95% KM (z) UCL	0.0652
620					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.0653
621					Minimum	0					95% KM (bootstrap t) UCL	0.0718
622					Maximum	0.27					95% KM (BCA) UCL	0.0667
623					Mean	0.0331					95% KM (percentile) UCL	0.0659
624					Median	0.00646					95% KM (Chebyshev) UCL	0.0803
625					SD	0.0504					97.5% KM (Chebyshev) UCL	0.0908
626					k star	0.111					99% KM (Chebyshev) UCL	0.111
627					Theta star	0.3						
628					Nu star	10.62				Potential UCLs to Use		
629					AppChi2	4.33					95% KM (t) UCL	0.0654
630					95% Gamma Approximate UCL	0.0812						
631					95% Adjusted Gamma UCL	0.0836						
632												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	U:\JCV\Puritan\2006\ucl data\fish\OU2_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(a)pyrene											
10												
11						General Statistics						
12						Number of Valid Samples	48			Number of Detected Data		3
13						Number of Unique Samples	3			Number of Non-Detect Data		45
14										Percent Non-Detects		93.75%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	8.6			Minimum Detected		2.152
18						Maximum Detected	13			Maximum Detected		2.565
19						Mean of Detected	11.2			Mean of Detected		2.401
20						SD of Detected	2.307			SD of Detected		0.219
21						Minimum Non-Detect	7.2			Minimum Non-Detect		1.974
22						Maximum Non-Detect	7.7			Maximum Non-Detect		2.041
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		45
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		3
26	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		93.75%
27												
28						UCL Statistics						
29				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
30						Shapiro Wilk Test Statistic	0.91			Shapiro Wilk Test Statistic		0.889
31						5% Shapiro Wilk Critical Value	0.767			5% Shapiro Wilk Critical Value		0.767
32				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
33												
34				Assuming Normal Distribution						Assuming Lognormal Distribution		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	4.182			Mean		1.38
37						SD	1.893			SD		0.27
38						95% DL/2 (t) UCL	4.641			95% H-Stat (DL/2) UCL		4.246
39												
40						Maximum Likelihood Estimate(MLE) Method				Robust ROS Method		
41						Mean	-3.68			Mean in Log Scale		0.873
42						SD	7.458			SD in Log Scale		0.697
43						95% MLE (t) UCL	-1.874			Mean in Original Scale		3.082
44						95% MLE (Tiku) UCL	7.246			SD in Original Scale		2.58
45										95% Percentile Bootstrap UCL		3.752
46										95% BCA Bootstrap UCL		3.814
47												
48				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
49						k star (bias corrected)	N/A			Data appear Normal at 5% Significance Level		
50						Theta Star	N/A					
51						nu star	N/A					
52												
53						A-D Test Statistic	0.395			Nonparametric Statistics		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	N/A					Mean	8.763
56					5% K-S Critical Value	N/A					SD	0.786
57				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.139
58											95% KM (t) UCL	8.996
59				**Assuming Gamma Distribution**							95% KM (z) UCL	8.991
60				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	10.93
61					Minimum	N/A					95% KM (bootstrap t) UCL	8.856
62					Maximum	N/A					95% KM (BCA) UCL	1E+31
63					Mean	N/A					95% KM (percentile) UCL	1E+31
64					Median	N/A					95% KM (Chebyshev) UCL	9.368
65					SD	N/A					97.5% KM (Chebyshev) UCL	9.63
66					k star	N/A					99% KM (Chebyshev) UCL	10.14
67					Theta star	N/A						
68					Nu star	N/A					**Potential UCLs to Use**	
69					AppChi2	N/A					95% KM (t) UCL	8.996
70					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	1E+31
71					95% Adjusted Gamma UCL	N/A						
72				**Warning: Recommended UCL exceeds the maximum observation**								
73												
74												
75	**Benzo[a]anthracene**											
76												
77					**General Statistics**							
78					Number of Valid Samples	48					Number of Detected Data	3
79					Number of Unique Samples	3					Number of Non-Detect Data	45
80											Percent Non-Detects	93.75%
81												
82				**Raw Statistics**						**Log-transformed Statistics**		
83					Minimum Detected	8.2					Minimum Detected	2.104
84					Maximum Detected	13					Maximum Detected	2.565
85					Mean of Detected	10.4					Mean of Detected	2.324
86					SD of Detected	2.425					SD of Detected	0.231
87					Minimum Non-Detect	7.2					Minimum Non-Detect	1.974
88					Maximum Non-Detect	7.7					Maximum Non-Detect	2.041
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	45
91	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	3
92	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	93.75%
93												
94					**UCL Statistics**							
95				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
96					Shapiro Wilk Test Statistic	0.98					Shapiro Wilk Test Statistic	0.994
97					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
98				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
99												
100				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
101					DL/2 Substitution Method						DL/2 Substitution Method	
102					Mean	4.132					Mean	1.375
103					SD	1.711					SD	0.252
104					95% DL/2 (t) UCL	4.547					95% H-Stat (DL/2) UCL	4.212
105												
106					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	

	A	B	C	D	E	F	G	H	I	J	K	L
107					Mean	11.05					Mean in Log Scale	0.523
108					SD	1.98					SD in Log Scale	0.821
109					95% MLE (t) UCL	11.53					Mean in Original Scale	2.4
110					95% MLE (Tiku) UCL	12.93					SD in Original Scale	2.46
111											95% Percentile Bootstrap UCL	3.002
112											95% BCA Bootstrap UCL	3.18
113												
114				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
115					k star (bias corrected)	N/A				**Data appear Normal at 5% Significance Level**		
116					Theta Star	N/A						
117					nu star	N/A						
118												
119					A-D Test Statistic	0.26				**Nonparametric Statistics**		
120					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
121					K-S Test Statistic	N/A					Mean	8.338
122					5% K-S Critical Value	N/A					SD	0.727
123				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	0.129
124											95% KM (t) UCL	8.553
125				**Assuming Gamma Distribution**							95% KM (z) UCL	8.549
126					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	9.492
127					Minimum	N/A					95% KM (bootstrap t) UCL	8.476
128					Maximum	N/A					95% KM (BCA) UCL	1E+31
129					Mean	N/A					95% KM (percentile) UCL	13
130					Median	N/A					95% KM (Chebyshev) UCL	8.898
131					SD	N/A					97.5% KM (Chebyshev) UCL	9.14
132					k star	N/A					99% KM (Chebyshev) UCL	9.616
133					Theta star	N/A						
134					Nu star	N/A				**Potential UCLs to Use**		
135					AppChi2	N/A					95% KM (t) UCL	8.553
136					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	13
137					95% Adjusted Gamma UCL	N/A						
138												
139												
140	**Dibenz[a,h]anthracene**											
141												
142					**General Statistics**							
143					Number of Valid Samples	48					Number of Detected Data	5
144					Number of Unique Samples	5					Number of Non-Detect Data	43
145											Percent Non-Detects	89.58%
146												
147				**Raw Statistics**						**Log-transformed Statistics**		
148					Minimum Detected	8.4					Minimum Detected	2.128
149					Maximum Detected	18					Maximum Detected	2.89
150					Mean of Detected	13.28					Mean of Detected	2.547
151					SD of Detected	4.086					SD of Detected	0.317
152					Minimum Non-Detect	7.2					Minimum Non-Detect	1.974
153					Maximum Non-Detect	7.7					Maximum Non-Detect	2.041
154												
155	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	43
156	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	5
157	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	89.58%
158												
159					**UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
160	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
161					Shapiro Wilk Test Statistic	0.918				Shapiro Wilk Test Statistic		0.932
162					5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value		0.762
163	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
164												
165	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
166					DL/2 Substitution Method					DL/2 Substitution Method		
167					Mean	4.709				Mean		1.44
168					SD	3.185				SD		0.393
169					95% DL/2 (t) UCL	5.481				95% H-Stat (DL/2) UCL		4.686
170												
171					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
172					Mean	-6.067				Mean in Log Scale		0.871
173					SD	11.01				SD in Log Scale		0.878
174					95% MLE (t) UCL	-3.399				Mean in Original Scale		3.568
175					95% MLE (Tiku) UCL	4.781				SD in Original Scale		3.852
176										95% Percentile Bootstrap UCL		4.582
177										95% BCA Bootstrap UCL		4.74
178												
179	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
180					k star (bias corrected)	5.284	**Data appear Normal at 5% Significance Level**					
181					Theta Star	2.513						
182					nu star	52.84						
183												
184					A-D Test Statistic	0.316	**Nonparametric Statistics**					
185					5% A-D Critical Value	0.679				Kaplan-Meier (KM) Method		
186					K-S Test Statistic	0.679				Mean		8.908
187					5% K-S Critical Value	0.357				SD		1.901
188	**Data appear Gamma Distributed at 5% Significance Level**									SE of Mean		0.307
189										95% KM (t) UCL		9.423
190	**Assuming Gamma Distribution**									95% KM (z) UCL		9.413
191					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		10.53
192					Minimum	0				95% KM (bootstrap t) UCL		9.474
193					Maximum	18				95% KM (BCA) UCL		17.02
194					Mean	2.813				95% KM (percentile) UCL		12.6
195					Median	0.00509				95% KM (Chebyshev) UCL		10.25
196					SD	4.465				97.5% KM (Chebyshev) UCL		10.82
197					k star	0.0864				99% KM (Chebyshev) UCL		11.96
198					Theta star	32.57						
199					Nu star	8.29	**Potential UCLs to Use**					
200					AppChi2	2.904				95% KM (t) UCL		9.423
201					95% Gamma Approximate UCL	8.03				95% KM (Percentile Bootstrap) UCL		12.6
202					95% Adjusted Gamma UCL	8.311						
203												
204												
205	**Indeno(1,2,3-cd)pyrene**											
206												
207					**General Statistics**							
208					Number of Valid Samples	48				Number of Detected Data		4
209					Number of Unique Samples	3				Number of Non-Detect Data		44
210										Percent Non-Detects		91.67%
211												
212	**Raw Statistics**						**Log-transformed Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
213					Minimum Detected	9.7					Minimum Detected	2.272
214					Maximum Detected	16					Maximum Detected	2.773
215					Mean of Detected	13.18					Mean of Detected	2.554
216					SD of Detected	3.305					SD of Detected	0.258
217					Minimum Non-Detect	7.2					Minimum Non-Detect	1.974
218					Maximum Non-Detect	7.7					Maximum Non-Detect	2.041
219												
220	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	44
221	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
222	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	91.67%
223												
224					**UCL Statistics**							
225				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
226					Shapiro Wilk Test Statistic	0.815					Shapiro Wilk Test Statistic	0.83
227					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
228				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
229												
230				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
231					DL/2 Substitution Method						DL/2 Substitution Method	
232					Mean	4.502					Mean	1.415
233					SD	2.772					SD	0.353
234					95% DL/2 (t) UCL	5.173					95% H-Stat (DL/2) UCL	4.506
235												
236					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
237					Mean	-7.377					Mean in Log Scale	1.057
238					SD	10.99					SD in Log Scale	0.735
239					95% MLE (t) UCL	-4.716					Mean in Original Scale	3.814
240					95% MLE (Tiku) UCL	5.507					SD in Original Scale	3.382
241											95% Percentile Bootstrap UCL	4.651
242											95% BCA Bootstrap UCL	4.85
243												
244				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
245					k star (bias corrected)	5.306				**Data appear Normal at 5% Significance Level**		
246					Theta Star	2.483						
247					nu star	42.44						
248												
249					A-D Test Statistic	0.525				**Nonparametric Statistics**		
250					5% A-D Critical Value	0.657					Kaplan-Meier (KM) Method	
251					K-S Test Statistic	0.657					Mean	9.99
252					5% K-S Critical Value	0.394					SD	1.267
253				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.211
254											95% KM (t) UCL	10.34
255				**Assuming Gamma Distribution**							95% KM (z) UCL	10.34
256					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	10.83
257					Minimum	0					95% KM (bootstrap t) UCL	10.18
258					Maximum	16					95% KM (BCA) UCL	16
259					Mean	2.007					95% KM (percentile) UCL	16
260					Median	0					95% KM (Chebyshev) UCL	10.91
261					SD	4.024					97.5% KM (Chebyshev) UCL	11.31
262					k star	0.0712					99% KM (Chebyshev) UCL	12.09
263					Theta star	28.2						
264					Nu star	6.83				**Potential UCLs to Use**		
265					AppChi2	2.078					95% KM (t) UCL	10.34

	A	B	C	D	E	F	G	H	I	J	K	L
266					95% Gamma Approximate UCL	6.596				95% KM (Percentile Bootstrap) UCL		16
267					95% Adjusted Gamma UCL	N/A						
268												
269												
270	Total Homologs											
271												
272					General Statistics							
273					Number of Valid Samples	48				Number of Unique Samples		36
274												
275					Raw Statistics					Log-transformed Statistics		
276					Minimum	90				Minimum of Log Data		4.5
277					Maximum	2000				Maximum of Log Data		7.601
278					Mean	506.2				Mean of log Data		5.986
279					Median	395				SD of log Data		0.712
280					SD	371.7						
281					Coefficient of Variation	0.734						
282					Skewness	1.709						
283												
284					Relevant UCL Statistics							
285					Normal Distribution Test					Lognormal Distribution Test		
286					Shapiro Wilk Test Statistic	0.851				Shapiro Wilk Test Statistic		0.978
287					Shapiro Wilk Critical Value	0.947				Shapiro Wilk Critical Value		0.947
288					Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level		
289												
290					Assuming Normal Distribution					Assuming Lognormal Distribution		
291					95% Student's-t UCL	596.2				95% H-UCL		634.3
292					95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL		759.7
293					95% Adjusted-CLT UCL	608.6				97.5% Chebyshev (MVUE) UCL		867.9
294					95% Modified-t UCL	598.4				99% Chebyshev (MVUE) UCL		1081
295												
296					Gamma Distribution Test					Nonparametric Test		
297					k star (bias corrected)	2.106				Data appear Gamma Distributed at 5% Significance Level		
298					Theta Star	240.3						
299					nu star	202.2						
300					Approximate Chi Square Value (.05)	170.3				Nonparametric Statistics		
301					Adjusted Level of Significance	0.045				95% CLT UCL		594.4
302					Adjusted Chi Square Value	169.4				95% Jackknife UCL		596.2
303										95% Standard Bootstrap UCL		596.3
304					Anderson-Darling Test Statistic	0.476				95% Bootstrap-t UCL		615.2
305					Anderson-Darling 5% Critical Value	0.761				95% Hall's Bootstrap UCL		621.4
306					Kolmogorov-Smirnov Test Statistic	0.1				95% Percentile Bootstrap UCL		598.5
307					Kolmogorov-Smirnov 5% Critical Value	0.129				95% BCA Bootstrap UCL		613.7
308					Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL		740
309										97.5% Chebyshev(Mean, Sd) UCL		841.2
310					Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL		1040
311					95% Approximate Gamma UCL	601						
312					95% Adjusted Gamma UCL	604.2						
313												
314					Potential UCL to Use					Use 95% Approximate Gamma UCL		601
315												
316												
317	4,4'-DDD											
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319						General Statistics						
320					Number of Valid Samples	48					Number of Detected Data	47
321					Number of Unique Samples	39					Number of Non-Detect Data	1
322											Percent Non-Detects	2.08%
323												
324				Raw Statistics						Log-transformed Statistics		
325					Minimum Detected	1.2					Minimum Detected	0.182
326					Maximum Detected	27					Maximum Detected	3.296
327					Mean of Detected	7.034					Mean of Detected	1.628
328					SD of Detected	6.068					SD of Detected	0.815
329					Minimum Non-Detect	0.32					Minimum Non-Detect	-1.139
330					Maximum Non-Detect	0.32					Maximum Non-Detect	-1.139
331												
332												
333						UCL Statistics						
334				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
335					Shapiro Wilk Test Statistic	0.816					Shapiro Wilk Test Statistic	0.968
336					5% Shapiro Wilk Critical Value	0.946					5% Shapiro Wilk Critical Value	0.946
337				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
338												
339				Assuming Normal Distribution						Assuming Lognormal Distribution		
340					DL/2 Substitution Method						DL/2 Substitution Method	
341					Mean	6.891					Mean	1.556
342					SD	6.084					SD	0.948
343					95% DL/2 (t) UCL	8.364					95% H-Stat (DL/2) UCL	9.402
344												
345					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
346					Mean	6.829					Mean in Log Scale	1.583
347					SD	6.116					SD in Log Scale	0.863
348					95% MLE (t) UCL	8.31					Mean in Original Scale	6.9
349					95% MLE (Tiku) UCL	8.238					SD in Original Scale	6.074
350											95% Percentile Bootstrap UCL	8.365
351											95% BCA Bootstrap UCL	8.556
352												
353				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
354					k star (bias corrected)	1.601				Data appear Gamma Distributed at 5% Significance Level		
355					Theta Star	4.393						
356					nu star	150.5						
357												
358					A-D Test Statistic	0.597				Nonparametric Statistics		
359					5% A-D Critical Value	0.765					Kaplan-Meier (KM) Method	
360					K-S Test Statistic	0.765					Mean	6.913
361					5% K-S Critical Value	0.131					SD	5.998
362				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	0.875
363											95% KM (t) UCL	8.381
364				Assuming Gamma Distribution							95% KM (z) UCL	8.352
365					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	8.377
366					Minimum	0					95% KM (bootstrap t) UCL	8.703
367					Maximum	27					95% KM (BCA) UCL	8.421
368					Mean	6.888					95% KM (percentile) UCL	8.398
369					Median	4.85					95% KM (Chebyshev) UCL	10.73
370					SD	6.088					97.5% KM (Chebyshev) UCL	12.38
371					k star	0.742					99% KM (Chebyshev) UCL	15.62

	A	B	C	D	E	F	G	H	I	J	K	L
372					Theta star	9.287						
373					Nu star	71.19	**Potential UCLs to Use**					
374					AppChi2	52.77					95% KM (Chebyshev) UCL	10.73
375				95% Gamma Approximate UCL		9.293						
376				95% Adjusted Gamma UCL		9.38						
377												
378												
379	**4,4'-DDE**											
380												
381					**General Statistics**							
382					Number of Valid Samples	48					Number of Unique Samples	37
383												
384				**Raw Statistics**						**Log-transformed Statistics**		
385					Minimum	2.9					Minimum of Log Data	1.065
386					Maximum	68					Maximum of Log Data	4.22
387					Mean	14.97					Mean of log Data	2.466
388					Median	12					SD of log Data	0.69
389					SD	11.92						
390					Coefficient of Variation	0.796						
391					Skewness	2.384						
392												
393					**Relevant UCL Statistics**							
394				**Normal Distribution Test**						**Lognormal Distribution Test**		
395					Shapiro Wilk Test Statistic	0.788					Shapiro Wilk Test Statistic	0.989
396					Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947
397				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
398												
399				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
400					95% Student's-t UCL	17.86					95% H-UCL	18.33
401				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	21.9
402					95% Adjusted-CLT UCL	18.43					97.5% Chebyshev (MVUE) UCL	24.94
403					95% Modified-t UCL	17.96					99% Chebyshev (MVUE) UCL	30.93
404												
405				**Gamma Distribution Test**						**Nonparametric Test**		
406					k star (bias corrected)	2.11				**Data appear Gamma Distributed at 5% Significance Level**		
407					Theta Star	7.094						
408					nu star	202.6						
409					Approximate Chi Square Value (.05)	170.7				**Nonparametric Statistics**		
410					Adjusted Level of Significance	0.045					95% CLT UCL	17.8
411					Adjusted Chi Square Value	169.8					95% Jackknife UCL	17.86
412											95% Standard Bootstrap UCL	17.86
413					Anderson-Darling Test Statistic	0.438					95% Bootstrap-t UCL	18.76
414					Anderson-Darling 5% Critical Value	0.761					95% Hall's Bootstrap UCL	19.51
415					Kolmogorov-Smirnov Test Statistic	0.0958					95% Percentile Bootstrap UCL	17.92
416					Kolmogorov-Smirnov 5% Critical Value	0.129					95% BCA Bootstrap UCL	18.45
417				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	22.47
418											97.5% Chebyshev(Mean, Sd) UCL	25.72
419				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	32.09
420					95% Approximate Gamma UCL	17.77						
421					95% Adjusted Gamma UCL	17.87						
422												
423				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	17.77
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**4,4'-DDT**											
427												
428						**General Statistics**						
429					Number of Valid Samples	48				Number of Detected Data		11
430					Number of Unique Samples	9				Number of Non-Detect Data		37
431										Percent Non-Detects		77.08%
432												
433				**Raw Statistics**						**Log-transformed Statistics**		
434					Minimum Detected	0.81				Minimum Detected		-0.211
435					Maximum Detected	9.8				Maximum Detected		2.282
436					Mean of Detected	3.837				Mean of Detected		1.133
437					SD of Detected	2.543				SD of Detected		0.719
438					Minimum Non-Detect	0.31				Minimum Non-Detect		-1.171
439					Maximum Non-Detect	0.32				Maximum Non-Detect		-1.139
440												
441	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		37
442	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		11
443	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		77.08%
444												
445						**UCL Statistics**						
446				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
447					Shapiro Wilk Test Statistic	0.884				Shapiro Wilk Test Statistic		0.948
448					5% Shapiro Wilk Critical Value	0.85				5% Shapiro Wilk Critical Value		0.85
449				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
450												
451				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
452					DL/2 Substitution Method					DL/2 Substitution Method		
453					Mean	1				Mean		-1.171
454					SD	1.954				SD		1.312
455					95% DL/2 (t) UCL	1.473				95% H-Stat (DL/2) UCL		0.704
456												
457					Maximum Likelihood Estimate(MLE) Method					Robust ROS Method		
458					Mean	-3.865				Mean in Log Scale		-0.975
459					SD	5.742				SD in Log Scale		1.548
460					95% MLE (t) UCL	-2.475				Mean in Original Scale		1.131
461					95% MLE (Tiku) UCL	-0.888				SD in Original Scale		1.914
462										95% Percentile Bootstrap UCL		1.602
463										95% BCA Bootstrap UCL		1.682
464												
465				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
466					k star (bias corrected)	1.891				**Data appear Normal at 5% Significance Level**		
467					Theta Star	2.029						
468					nu star	41.61						
469												
470					A-D Test Statistic	0.329				**Nonparametric Statistics**		
471					5% A-D Critical Value	0.736				Kaplan-Meier (KM) Method		
472					K-S Test Statistic	0.736				Mean		1.504
473					5% K-S Critical Value	0.258				SD		1.722
474				**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean		0.261
475										95% KM (t) UCL		1.941
476				**Assuming Gamma Distribution**						95% KM (z) UCL		1.933
477					Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL		1.879

	A	B	C	D	E	F	G	H	I	J	K	L
478					Minimum	0					95% KM (bootstrap t) UCL	2.073
479					Maximum	9.8					95% KM (BCA) UCL	2.971
480					Mean	0.935					95% KM (percentile) UCL	2.667
481					Median	0					95% KM (Chebyshev) UCL	2.64
482					SD	1.993					97.5% KM (Chebyshev) UCL	3.132
483					k star	0.073					99% KM (Chebyshev) UCL	4.098
484					Theta star	12.81						
485					Nu star	7.005				**Potential UCLs to Use**		
486					AppChi2	2.173					95% KM (t) UCL	1.941
487					95% Gamma Approximate UCL	3.014					95% KM (Percentile Bootstrap) UCL	2.667
488					95% Adjusted Gamma UCL	3.132						
489												
490												
491	**alpha-Chlordane**											
492												
493					**General Statistics**							
494					Number of Valid Samples	48					Number of Detected Data	47
495					Number of Unique Samples	40					Number of Non-Detect Data	1
496											Percent Non-Detects	2.08%
497												
498				**Raw Statistics**						**Log-transformed Statistics**		
499					Minimum Detected	0.47					Minimum Detected	-0.755
500					Maximum Detected	18					Maximum Detected	2.89
501					Mean of Detected	4.402					Mean of Detected	1.056
502					SD of Detected	4.121					SD of Detected	0.965
503					Minimum Non-Detect	0.32					Minimum Non-Detect	-1.139
504					Maximum Non-Detect	0.32					Maximum Non-Detect	-1.139
505												
506												
507					**UCL Statistics**							
508				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
509					Shapiro Wilk Test Statistic	0.827					Shapiro Wilk Test Statistic	0.953
510					5% Shapiro Wilk Critical Value	0.946					5% Shapiro Wilk Critical Value	0.946
511				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
512												
513				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
514					DL/2 Substitution Method						DL/2 Substitution Method	
515					Mean	4.314					Mean	0.995
516					SD	4.123					SD	1.042
517					95% DL/2 (t) UCL	5.313					95% H-Stat (DL/2) UCL	6.228
518												
519					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
520					Mean	4.271					Mean in Log Scale	1.004
521					SD	4.142					SD in Log Scale	1.021
522					95% MLE (t) UCL	5.274					Mean in Original Scale	4.316
523					95% MLE (Tiku) UCL	5.216					SD in Original Scale	4.121
524											95% Percentile Bootstrap UCL	5.294
525											95% BCA Bootstrap UCL	5.436
526												
527				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
528					k star (bias corrected)	1.244				**Data appear Gamma Distributed at 5% Significance Level**		
529					Theta Star	3.538						
530					nu star	117						

	A	B	C	D	E	F	G	H	I	J	K	L
531												
532					A-D Test Statistic	0.684			**Nonparametric Statistics**			
533					5% A-D Critical Value	0.772					Kaplan-Meier (KM) Method	
534					K-S Test Statistic	0.772					Mean	4.32
535					5% K-S Critical Value	0.132					SD	4.074
536			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.594
537											95% KM (t) UCL	5.318
538			**Assuming Gamma Distribution**								95% KM (z) UCL	5.298
539				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	5.313
540					Minimum	0					95% KM (bootstrap t) UCL	5.531
541					Maximum	18					95% KM (BCA) UCL	5.338
542					Mean	4.311					95% KM (percentile) UCL	5.28
543					Median	2.85					95% KM (Chebyshev) UCL	6.911
544					SD	4.127					97.5% KM (Chebyshev) UCL	8.032
545					k star	0.673					99% KM (Chebyshev) UCL	10.23
546					Theta star	6.406						
547					Nu star	64.6			**Potential UCLs to Use**			
548					AppChi2	47.11					95% KM (Chebyshev) UCL	6.911
549					95% Gamma Approximate UCL	5.911						
550					95% Adjusted Gamma UCL	5.97						
551												
552												
553	**Dieldrin**											
554												
555					**General Statistics**							
556					Number of Valid Samples	48					Number of Unique Samples	37
557												
558			**Raw Statistics**						**Log-transformed Statistics**			
559					Minimum	2					Minimum of Log Data	0.693
560					Maximum	43					Maximum of Log Data	3.761
561					Mean	10.9					Mean of log Data	2.096
562					Median	7.85					SD of log Data	0.761
563					SD	9.257						
564					Coefficient of Variation	0.849						
565					Skewness	1.749						
566												
567					**Relevant UCL Statistics**							
568			**Normal Distribution Test**						**Lognormal Distribution Test**			
569					Shapiro Wilk Test Statistic	0.796					Shapiro Wilk Test Statistic	0.967
570					Shapiro Wilk Critical Value	0.947					Shapiro Wilk Critical Value	0.947
571			**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
572												
573			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
574					95% Student's-t UCL	13.14					95% H-UCL	13.7
575			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	16.5
576					95% Adjusted-CLT UCL	13.46					97.5% Chebyshev (MVUE) UCL	18.98
577					95% Modified-t UCL	13.2					99% Chebyshev (MVUE) UCL	23.84
578												
579			**Gamma Distribution Test**						**Nonparametric Test**			
580					k star (bias corrected)	1.755			**Data appear Lognormal at 5% Significance Level**			
581					Theta Star	6.212						
582					nu star	168.4						
583					Approximate Chi Square Value (.05)	139.4			**Nonparametric Statistics**			

	A	B	C	D	E	F	G	H	I	J	K	L
584					Adjusted Level of Significance	0.045					95% CLT UCL	13.1
585					Adjusted Chi Square Value	138.6					95% Jackknife UCL	13.14
586											95% Standard Bootstrap UCL	13.1
587					Anderson-Darling Test Statistic	0.911					95% Bootstrap-t UCL	13.74
588					Anderson-Darling 5% Critical Value	0.764					95% Hall's Bootstrap UCL	13.51
589					Kolmogorov-Smirnov Test Statistic	0.149					95% Percentile Bootstrap UCL	13.08
590					Kolmogorov-Smirnov 5% Critical Value	0.13					95% BCA Bootstrap UCL	13.56
591					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	16.72
592											97.5% Chebyshev(Mean, Sd) UCL	19.24
593					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	24.19
594					95% Approximate Gamma UCL	13.17						
595					95% Adjusted Gamma UCL	13.25						
596												
597					**Potential UCL to Use**						Use 95% H-UCL	13.7
598												
599												
600	**Gamma-Chlordane**											
601												
602					**General Statistics**							
603					Number of Valid Samples	48					Number of Detected Data	39
604					Number of Unique Samples	32					Number of Non-Detect Data	9
605											Percent Non-Detects	18.75%
606												
607					**Raw Statistics**						**Log-transformed Statistics**	
608					Minimum Detected	0.53					Minimum Detected	-0.635
609					Maximum Detected	11					Maximum Detected	2.398
610					Mean of Detected	3.734					Mean of Detected	1.071
611					SD of Detected	2.433					SD of Detected	0.782
612					Minimum Non-Detect	0.31					Minimum Non-Detect	-1.171
613					Maximum Non-Detect	0.32					Maximum Non-Detect	-1.139
614												
615	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
616	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	39
617	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	18.75%
618												
619					**UCL Statistics**							
620					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
621					Shapiro Wilk Test Statistic	0.923					Shapiro Wilk Test Statistic	0.925
622					5% Shapiro Wilk Critical Value	0.939					5% Shapiro Wilk Critical Value	0.939
623					**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**	
624												
625					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
626					DL/2 Substitution Method						DL/2 Substitution Method	
627					Mean	3.063					Mean	0.523
628					SD	2.603					SD	1.35
629					95% DL/2 (t) UCL	3.694					95% H-Stat (DL/2) UCL	4.536
630												
631					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
632					Mean	2.776					Mean in Log Scale	0.754
633					SD	3.006					SD in Log Scale	0.976
634					95% MLE (t) UCL	3.504					Mean in Original Scale	3.139
635					95% MLE (Tiku) UCL	3.519					SD in Original Scale	2.521
636											95% Percentile Bootstrap UCL	3.726

	A	B	C	D	E	F	G	H	I	J	K	L
637											95% BCA Bootstrap UCL	3.783
638												
639	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
640					k star (bias corrected)	2.028	**Data appear Gamma Distributed at 5% Significance Level**					
641					Theta Star	1.841						
642					nu star	158.2						
643												
644					A-D Test Statistic	0.428	**Nonparametric Statistics**					
645					5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method	
646					K-S Test Statistic	0.758					Mean	3.133
647					5% K-S Critical Value	0.143					SD	2.5
648	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.366
649											95% KM (t) UCL	3.747
650	**Assuming Gamma Distribution**										95% KM (z) UCL	3.734
651				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	3.737
652					Minimum	0					95% KM (bootstrap t) UCL	3.812
653					Maximum	11					95% KM (BCA) UCL	3.761
654					Mean	3.105					95% KM (percentile) UCL	3.736
655					Median	2.95					95% KM (Chebyshev) UCL	4.727
656					SD	2.56					97.5% KM (Chebyshev) UCL	5.416
657					k star	0.486					99% KM (Chebyshev) UCL	6.77
658					Theta star	6.382						
659					Nu star	46.7	**Potential UCLs to Use**					
660					AppChi2	32.02					95% KM (BCA) UCL	3.761
661					95% Gamma Approximate UCL	4.528						
662					95% Adjusted Gamma UCL	4.582						
663												
664												
665	**Heptachlor Epoxide**											
666												
667					**General Statistics**							
668					Number of Valid Samples	48					Number of Detected Data	8
669					Number of Unique Samples	8					Number of Non-Detect Data	40
670											Percent Non-Detects	83.33%
671												
672				**Raw Statistics**						**Log-transformed Statistics**		
673					Minimum Detected	0.34					Minimum Detected	-1.079
674					Maximum Detected	0.81					Maximum Detected	-0.211
675					Mean of Detected	0.566					Mean of Detected	-0.612
676					SD of Detected	0.173					SD of Detected	0.318
677					Minimum Non-Detect	0.31					Minimum Non-Detect	-1.171
678					Maximum Non-Detect	0.32					Maximum Non-Detect	-1.139
679												
680	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	40
681	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	8
682	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	83.33%
683												
684					**UCL Statistics**							
685	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
686					Shapiro Wilk Test Statistic	0.943					Shapiro Wilk Test Statistic	0.945
687					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
688	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
689												

	A	B	C	D	E	F	G	H	I	J	K	L
690	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
691					DL/2 Substitution Method						DL/2 Substitution Method	
692					Mean	0.225					Mean	-1.648
693					SD	0.168					SD	0.484
694					95% DL/2 (t) UCL	0.265					95% H-Stat (DL/2) UCL	0.22
695												
696					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
697					Mean	-0.0959					Mean in Log Scale	-1.845
698					SD	0.435					SD in Log Scale	0.796
699					95% MLE (t) UCL	0.00952					Mean in Original Scale	0.216
700					95% MLE (Tiku) UCL	0.197					SD in Original Scale	0.187
701											95% Percentile Bootstrap UCL	0.262
702											95% BCA Bootstrap UCL	0.263
703												
704	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
705					k star (bias corrected)	7.44	**Data appear Normal at 5% Significance Level**					
706					Theta Star	0.0761						
707					nu star	119						
708												
709					A-D Test Statistic	0.267	**Nonparametric Statistics**					
710					5% A-D Critical Value	0.715					Kaplan-Meier (KM) Method	
711					K-S Test Statistic	0.715					Mean	0.378
712					5% K-S Critical Value	0.294					SD	0.107
713	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0165
714											95% KM (t) UCL	0.405
715	**Assuming Gamma Distribution**										95% KM (z) UCL	0.405
716					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.412
717					Minimum	0					95% KM (bootstrap t) UCL	0.409
718					Maximum	0.81					95% KM (BCA) UCL	0.513
719					Mean	0.176					95% KM (percentile) UCL	0.488
720					Median	0.0969					95% KM (Chebyshev) UCL	0.45
721					SD	0.217					97.5% KM (Chebyshev) UCL	0.481
722					k star	0.125					99% KM (Chebyshev) UCL	0.542
723					Theta star	1.406						
724					Nu star	12.01	**Potential UCLs to Use**					
725					AppChi2	5.236					95% KM (t) UCL	0.405
726					95% Gamma Approximate UCL	0.404					95% KM (Percentile Bootstrap) UCL	0.488
727					95% Adjusted Gamma UCL	0.415						
728												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	H:\JCV\Puritan\2007\EPCs\Surface Water\s_bank_sw_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Benzo(b)fluoranthene											
10												
11						General Statistics						
12						Number of Valid Samples	14			Number of Detected Data		2
13						Number of Unique Samples	2			Number of Non-Detect Data		12
14										Percent Non-Detects		85.71%
15												
16				Raw Statistics						Log-transformed Statistics		
17						Minimum Detected	0.14			Minimum Detected		-1.966
18						Maximum Detected	0.16			Maximum Detected		-1.833
19						Mean of Detected	0.15			Mean of Detected		-1.899
20						SD of Detected	0.0141			SD of Detected		0.0944
21						Minimum Non-Detect	0.1			Minimum Non-Detect		-2.303
22						Maximum Non-Detect	0.1			Maximum Non-Detect		-2.303
23												
24												
25						UCL Statistics						
26				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
27						Shapiro Wilk Test Statistic	1			Shapiro Wilk Test Statistic		1
28						5% Shapiro Wilk Critical Value	N/A			5% Shapiro Wilk Critical Value		N/A
29				Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level		
30												
31				Assuming Normal Distribution						Assuming Lognormal Distribution		
32						DL/2 Substitution Method				DL/2 Substitution Method		
33						Mean	0.0643			Mean		-2.839
34						SD	0.0365			SD		0.399
35						95% DL/2 (t) UCL	0.0816			95% H-Stat (DL/2) UCL		0.0751
36												
37						Maximum Likelihood Estimate(MLE) Method	N/A			Robust ROS Method		
38										Mean in Log Scale		-2.448
39										SD in Log Scale		0.337
40										Mean in Original Scale		0.0912
41										SD in Original Scale		0.0316
42										95% Percentile Bootstrap UCL		0.105
43										95% BCA Bootstrap UCL		0.106
44												
45				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
46						k star (bias corrected)	N/A			Data do not follow a Discernable Distribution (0.05)		
47						Theta Star	N/A					
48						nu star	N/A					
49												
50						A-D Test Statistic	0.359			Nonparametric Statistics		
51						5% A-D Critical Value	N/A			Kaplan-Meier (KM) Method		
52						K-S Test Statistic	N/A			Mean		0.141
53						5% K-S Critical Value	N/A			SD		0.00515

	A	B	C	D	E	F	G	H	I	J	K	L
54	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.00195
55											95% KM (t) UCL	0.145
56	**Assuming Gamma Distribution**										95% KM (z) UCL	0.145
57				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.155
58					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
59					Maximum	N/A					95% KM (BCA) UCL	0.16
60					Mean	N/A					95% KM (percentile) UCL	0.16
61					Median	N/A					95% KM (Chebyshev) UCL	0.15
62					SD	N/A					97.5% KM (Chebyshev) UCL	0.154
63					k star	N/A					99% KM (Chebyshev) UCL	0.161
64					Theta star	N/A						
65					Nu star	N/A	**Potential UCLs to Use**					
66					AppChi2	N/A					95% KM (t) UCL	0.145
67					95% Gamma Approximate UCL	N/A					95% KM (% Bootstrap) UCL	0.16
68					95% Adjusted Gamma UCL	N/A						
69												
70												
71	**Aluminum**											
72												
73					**General Statistics**							
74					Number of Valid Samples	14					Number of Detected Data	11
75					Number of Unique Samples	11					Number of Non-Detect Data	3
76											Percent Non-Detects	21.43%
77												
78				**Raw Statistics**						**Log-transformed Statistics**		
79					Minimum Detected	23.9					Minimum Detected	3.174
80					Maximum Detected	995					Maximum Detected	6.903
81					Mean of Detected	215.1					Mean of Detected	4.682
82					SD of Detected	304.7					SD of Detected	1.165
83					Minimum Non-Detect	200					Minimum Non-Detect	5.298
84					Maximum Non-Detect	200					Maximum Non-Detect	5.298
85												
86												
87					**UCL Statistics**							
88				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
89					Shapiro Wilk Test Statistic	0.654					Shapiro Wilk Test Statistic	0.925
90					5% Shapiro Wilk Critical Value	0.85					5% Shapiro Wilk Critical Value	0.85
91				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
92												
93				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
94					DL/2 Substitution Method						DL/2 Substitution Method	
95					Mean	190.5					Mean	4.665
96					SD	271.7					SD	1.022
97					95% DL/2 (t) UCL	319.1					95% H-Stat (DL/2) UCL	700.8
98												
99					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
100					Mean	-346.5					Mean in Log Scale	4.574
101					SD	695.7					SD in Log Scale	1.075
102					95% MLE (t) UCL	-17.23					Mean in Original Scale	185.1
103					95% MLE (Tiku) UCL	399.8					SD in Original Scale	274.4
104											95% Percentile Bootstrap UCL	313.1
105											95% BCA Bootstrap UCL	350.3
106												

	A	B	C	D	E	F	G	H	I	J	K	L
107	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
108					k star (bias corrected)	0.681	**Data appear Lognormal at 5% Significance Level**					
109					Theta Star	315.8						
110					nu star	14.99						
111												
112					A-D Test Statistic	0.812	**Nonparametric Statistics**					
113					5% A-D Critical Value	0.758				Kaplan-Meier (KM) Method		
114					K-S Test Statistic	0.758				Mean		183.7
115					5% K-S Critical Value	0.264				SD		264.9
116	**Data not Gamma Distributed at 5% Significance Level**									SE of Mean		74.38
117										95% KM (t) UCL		315.4
118	**Assuming Gamma Distribution**									95% KM (z) UCL		306
119				Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL		314.1
120					Minimum	N/A				95% KM (bootstrap t) UCL		696.4
121					Maximum	N/A				95% KM (BCA) UCL		325.3
122					Mean	N/A				95% KM (percentile) UCL		309.2
123					Median	N/A				95% KM (Chebyshev) UCL		507.9
124					SD	N/A				97.5% KM (Chebyshev) UCL		648.2
125					k star	N/A				99% KM (Chebyshev) UCL		923.8
126					Theta star	N/A						
127					Nu star	N/A	**Potential UCLs to Use**					
128					AppChi2	N/A				97.5% KM (Chebyshev) UCL		648.2
129					95% Gamma Approximate UCL	N/A						
130					95% Adjusted Gamma UCL	N/A						
131												
132												
133	**Arsenic**											
134												
135					**General Statistics**							
136					Number of Valid Samples	14				Number of Unique Samples		13
137												
138	**Raw Statistics**						**Log-transformed Statistics**					
139					Minimum	1.19				Minimum of Log Data		0.174
140					Maximum	2.41				Maximum of Log Data		0.88
141					Mean	1.563				Mean of log Data		0.43
142					Median	1.465				SD of log Data		0.181
143					SD	0.312						
144					Coefficient of Variation	0.2						
145					Skewness	1.72						
146												
147					**Relevant UCL Statistics**							
148	**Normal Distribution Test**						**Lognormal Distribution Test**					
149					Shapiro Wilk Test Statistic	0.835				Shapiro Wilk Test Statistic		0.9
150					Shapiro Wilk Critical Value	0.874				Shapiro Wilk Critical Value		0.874
151	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
152												
153	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
154					95% Student's-t UCL	1.711				95% H-UCL		1.711
155	**95% UCLs (Adjusted for Skewness)**									95% Chebyshev (MVUE) UCL		1.891
156					95% Adjusted-CLT UCL	1.741				97.5% Chebyshev (MVUE) UCL		2.034
157					95% Modified-t UCL	1.717				99% Chebyshev (MVUE) UCL		2.314
158												
159	**Gamma Distribution Test**						**Nonparametric Test**					

	A	B	C	D	E	F	G	H	I	J	K	L
160					k star (bias corrected)	24.5	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
161					Theta Star	0.0638						
162					nu star	686.1						
163					Approximate Chi Square Value (.05)	626.3	**Nonparametric Statistics**					
164					Adjusted Level of Significance	0.0312					95% CLT UCL	1.7
165					Adjusted Chi Square Value	618.7					95% Jackknife UCL	1.711
166											95% Standard Bootstrap UCL	1.697
167					Anderson-Darling Test Statistic	0.724					95% Bootstrap-t UCL	1.808
168					Anderson-Darling 5% Critical Value	0.734					95% Hall's Bootstrap UCL	1.975
169					Kolmogorov-Smirnov Test Statistic	0.238					95% Percentile Bootstrap UCL	1.708
170					Kolmogorov-Smirnov 5% Critical Value	0.228					95% BCA Bootstrap UCL	1.739
171	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	1.927
172											97.5% Chebyshev(Mean, Sd) UCL	2.084
173			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	2.394
174					95% Approximate Gamma UCL	1.712						
175					95% Adjusted Gamma UCL	1.733						
176												
177			**Potential UCL to Use**								Use 95% Approximate Gamma UCL	1.712
178												
179												
180	**Barium**											
181												
182					**General Statistics**							
183					Number of Valid Samples	14					Number of Detected Data	5
184					Number of Unique Samples	5					Number of Non-Detect Data	9
185											Percent Non-Detects	64.29%
186												
187			**Raw Statistics**				**Log-transformed Statistics**					
188					Minimum Detected	37					Minimum Detected	3.611
189					Maximum Detected	63					Maximum Detected	4.143
190					Mean of Detected	44.34					Mean of Detected	3.772
191					SD of Detected	10.73					SD of Detected	0.217
192					Minimum Non-Detect	39.5					Minimum Non-Detect	3.676
193					Maximum Non-Detect	200					Maximum Non-Detect	5.298
194												
195	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
196	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
197	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
198												
199					**UCL Statistics**							
200			**Normal Distribution Test with Detected Values Only**				**Lognormal Distribution Test with Detected Values Only**					
201					Shapiro Wilk Test Statistic	0.748					Shapiro Wilk Test Statistic	0.789
202					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
203			**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
204												
205			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
206					DL/2 Substitution Method						DL/2 Substitution Method	
207					Mean	52.6					Mean	3.78
208					SD	33.06					SD	0.625
209					95% DL/2 (t) UCL	68.25					95% H-Stat (DL/2) UCL	96.75
210												
211					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
212											Mean in Log Scale	3.71

	A	B	C	D	E	F	G	H	I	J	K	L
213											SD in Log Scale	0.148
214											Mean in Original Scale	41.32
215											SD in Original Scale	7.045
216											95% Percentile Bootstrap UCL	44.7
217											95% BCA Bootstrap UCL	45.81
218												
219				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
220					k star (bias corrected)	10.06			**Data appear Gamma Distributed at 5% Significance Level**			
221					Theta Star	4.407						
222					nu star	100.6						
223												
224					A-D Test Statistic	0.656			**Nonparametric Statistics**			
225					5% A-D Critical Value	0.679					Kaplan-Meier (KM) Method	
226					K-S Test Statistic	0.679					Mean	41.43
227					5% K-S Critical Value	0.357					SD	7.541
228				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	2.75
229											95% KM (t) UCL	46.3
230				**Assuming Gamma Distribution**							95% KM (z) UCL	45.95
231					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	46.17
232					Minimum	N/A					95% KM (bootstrap t) UCL	52.56
233					Maximum	N/A					95% KM (BCA) UCL	48.65
234					Mean	N/A					95% KM (percentile) UCL	46.53
235					Median	N/A					95% KM (Chebyshev) UCL	53.42
236					SD	N/A					97.5% KM (Chebyshev) UCL	58.6
237					k star	N/A					99% KM (Chebyshev) UCL	68.79
238					Theta star	N/A						
239					Nu star	N/A			**Potential UCLs to Use**			
240					AppChi2	N/A					95% KM (t) UCL	46.3
241					95% Gamma Approximate UCL	N/A						
242					95% Adjusted Gamma UCL	N/A						
243												
244												
245	**Chromium**											
246												
247						**General Statistics**						
248					Number of Valid Samples	14					Number of Detected Data	8
249					Number of Unique Samples	8					Number of Non-Detect Data	6
250											Percent Non-Detects	42.86%
251												
252				**Raw Statistics**					**Log-transformed Statistics**			
253					Minimum Detected	0.43					Minimum Detected	-0.844
254					Maximum Detected	10					Maximum Detected	2.303
255					Mean of Detected	2.805					Mean of Detected	0.504
256					SD of Detected	3.366					SD of Detected	1.053
257					Minimum Non-Detect	0.4					Minimum Non-Detect	-0.916
258					Maximum Non-Detect	1.5					Maximum Non-Detect	0.405
259												
260	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	10
261	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
262	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	71.43%
263												
264						**UCL Statistics**						
265				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			

	A	B	C	D	E	F	G	H	I	J	K	L
266					Shapiro Wilk Test Statistic	0.72					Shapiro Wilk Test Statistic	0.931
267					5% Shapiro Wilk Critical Value	0.818					5% Shapiro Wilk Critical Value	0.818
268					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
269												
270					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
271					DL/2 Substitution Method						DL/2 Substitution Method	
272					Mean	1.769					Mean	-0.169
273					SD	2.768					SD	1.163
274					95% DL/2 (t) UCL	3.079					95% H-Stat (DL/2) UCL	4.417
275												
276					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
277					Mean	-1.966					Mean in Log Scale	-0.391
278					SD	5.835					SD in Log Scale	1.362
279					95% MLE (t) UCL	0.796					Mean in Original Scale	1.7
280					95% MLE (Tiku) UCL	3.066					SD in Original Scale	2.803
281											95% Percentile Bootstrap UCL	3.106
282											95% BCA Bootstrap UCL	3.577
283												
284					**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**	
285					k star (bias corrected)	0.761					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
286					Theta Star	3.684						
287					nu star	12.18						
288												
289					A-D Test Statistic	0.587					**Nonparametric Statistics**	
290					5% A-D Critical Value	0.734					Kaplan-Meier (KM) Method	
291					K-S Test Statistic	0.734					Mean	1.814
292					5% K-S Critical Value	0.301					SD	2.644
293					**Data follow approximate Gamma Distribution at 5% Significance Level**						SE of Mean	0.756
294											95% KM (t) UCL	3.152
295					**Assuming Gamma Distribution**						95% KM (z) UCL	3.057
296					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	3.051
297					Minimum	0					95% KM (bootstrap t) UCL	7.996
298					Maximum	10					95% KM (BCA) UCL	3.394
299					Mean	1.378					95% KM (percentile) UCL	3.204
300					Median	0					95% KM (Chebyshev) UCL	5.109
301					SD	2.942					97.5% KM (Chebyshev) UCL	6.534
302					k star	0.0977					99% KM (Chebyshev) UCL	9.335
303					Theta star	14.1						
304					Nu star	2.737					**Potential UCLs to Use**	
305					AppChi2	0.299					95% KM (BCA) UCL	3.394
306					95% Gamma Approximate UCL	12.61						
307					95% Adjusted Gamma UCL	16.86						
308												
309												
310	**Iron**											
311												
312					**General Statistics**							
313					Number of Valid Samples	14					Number of Unique Samples	14
314												
315					**Raw Statistics**						**Log-transformed Statistics**	
316					Minimum	407					Minimum of Log Data	6.009
317					Maximum	4910					Maximum of Log Data	8.499
318					Mean	1401					Mean of log Data	7.038

	A	B	C	D	E	F	G	H	I	J	K	L
319					Median	986.5					SD of log Data	0.627
320					SD	1136						
321					Coefficient of Variation	0.811						
322					Skewness	2.547						
323												
324					**Relevant UCL Statistics**							
325			**Normal Distribution Test**						**Lognormal Distribution Test**			
326					Shapiro Wilk Test Statistic	0.711					Shapiro Wilk Test Statistic	0.962
327					Shapiro Wilk Critical Value	0.874					Shapiro Wilk Critical Value	0.874
328			**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
329												
330			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			
331					95% Student's-t UCL	1939					95% H-UCL	2049
332			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	2403
333					95% Adjusted-CLT UCL	2122					97.5% Chebyshev (MVUE) UCL	2852
334					95% Modified-t UCL	1973					99% Chebyshev (MVUE) UCL	3734
335												
336			**Gamma Distribution Test**						**Nonparametric Test**			
337					k star (bias corrected)	2.07			**Data appear Gamma Distributed at 5% Significance Level**			
338					Theta Star	676.9						
339					nu star	57.95						
340					Approximate Chi Square Value (.05)	41.45			**Nonparametric Statistics**			
341					Adjusted Level of Significance	0.0312					95% CLT UCL	1901
342					Adjusted Chi Square Value	39.61					95% Jackknife UCL	1939
343											95% Standard Bootstrap UCL	1879
344					Anderson-Darling Test Statistic	0.537					95% Bootstrap-t UCL	2568
345					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	4138
346					Kolmogorov-Smirnov Test Statistic	0.192					95% Percentile Bootstrap UCL	1940
347					Kolmogorov-Smirnov 5% Critical Value	0.231					95% BCA Bootstrap UCL	2132
348			**Data appear Gamma Distributed at 5% Significance Level**								95% Chebyshev(Mean, Sd) UCL	2725
349											97.5% Chebyshev(Mean, Sd) UCL	3298
350			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	4423
351					95% Approximate Gamma UCL	1959						
352					95% Adjusted Gamma UCL	2050						
353												
354			**Potential UCL to Use**								Use 95% Approximate Gamma UCL	1959
355												
356												
357	**Lead**											
358												
359					**General Statistics**							
360					Number of Valid Samples	14					Number of Detected Data	5
361					Number of Unique Samples	5					Number of Non-Detect Data	9
362											Percent Non-Detects	64.29%
363												
364			**Raw Statistics**						**Log-transformed Statistics**			
365					Minimum Detected	1.1					Minimum Detected	0.0953
366					Maximum Detected	19.6					Maximum Detected	2.976
367					Mean of Detected	8.74					Mean of Detected	1.739
368					SD of Detected	7.68					SD of Detected	1.146
369					Minimum Non-Detect	2					Minimum Non-Detect	0.693
370					Maximum Non-Detect	2					Maximum Non-Detect	0.693
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373						UCL Statistics						
374				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
375						Shapiro Wilk Test Statistic	0.923				Shapiro Wilk Test Statistic	0.962
376						5% Shapiro Wilk Critical Value	0.762				5% Shapiro Wilk Critical Value	0.762
377				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
378												
379				Assuming Normal Distribution						Assuming Lognormal Distribution		
380						DL/2 Substitution Method					DL/2 Substitution Method	
381						Mean	3.764				Mean	0.621
382						SD	5.741				SD	1.074
383						95% DL/2 (t) UCL	6.482				95% H-Stat (DL/2) UCL	5.179
384												
385						Maximum Likelihood Estimate(MLE) Method					Robust ROS Method	
386						Mean	-5.474				Mean in Log Scale	0.515
387						SD	13.42				SD in Log Scale	1.346
388						95% MLE (t) UCL	0.88				Mean in Original Scale	3.871
389						95% MLE (Tiku) UCL	5.958				SD in Original Scale	5.73
390											95% Percentile Bootstrap UCL	6.483
391											95% BCA Bootstrap UCL	7.131
392												
393				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
394						k star (bias corrected)	0.657			Data appear Normal at 5% Significance Level		
395						Theta Star	13.31					
396						nu star	6.566					
397												
398						A-D Test Statistic	0.205			Nonparametric Statistics		
399						5% A-D Critical Value	0.688				Kaplan-Meier (KM) Method	
400						K-S Test Statistic	0.688				Mean	3.829
401						5% K-S Critical Value	0.363				SD	5.5
402				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	1.644
403											95% KM (t) UCL	6.739
404				Assuming Gamma Distribution							95% KM (z) UCL	6.532
405						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	6.363
406						Minimum	0				95% KM (bootstrap t) UCL	7.711
407						Maximum	19.6				95% KM (BCA) UCL	14.46
408						Mean	3.226				95% KM (percentile) UCL	8.914
409						Median	0				95% KM (Chebyshev) UCL	10.99
410						SD	6.048				97.5% KM (Chebyshev) UCL	14.09
411						k star	0.101				99% KM (Chebyshev) UCL	20.18
412						Theta star	31.82					
413						Nu star	2.839			Potential UCLs to Use		
414						AppChi2	0.326				95% KM (t) UCL	6.739
415						95% Gamma Approximate UCL	28.06				95% KM (Percentile Bootstrap) UCL	8.914
416						95% Adjusted Gamma UCL	37.5					
417												
418												
419	Manganese											
420												
421						General Statistics						
422						Number of Valid Samples	14				Number of Unique Samples	14
423												
424				Raw Statistics						Log-transformed Statistics		

	A	B	C	D	E	F	G	H	I	J	K	L
425					Minimum	96.9				Minimum of Log Data		4.574
426					Maximum	1010				Maximum of Log Data		6.918
427					Mean	311.3				Mean of log Data		5.491
428					Median	192.5				SD of log Data		0.681
429					SD	267.1						
430					Coefficient of Variation	0.858						
431					Skewness	1.829						
432												
433					Relevant UCL Statistics							
434			Normal Distribution Test						Lognormal Distribution Test			
435					Shapiro Wilk Test Statistic	0.72				Shapiro Wilk Test Statistic		0.886
436					Shapiro Wilk Critical Value	0.874				Shapiro Wilk Critical Value		0.874
437			Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level			
438												
439			Assuming Normal Distribution						Assuming Lognormal Distribution			
440					95% Student's-t UCL	437.7				95% H-UCL		473.6
441			95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL		549.1
442					95% Adjusted-CLT UCL	466				97.5% Chebyshev (MVUE) UCL		657.1
443					95% Modified-t UCL	443.5				99% Chebyshev (MVUE) UCL		869
444												
445			Gamma Distribution Test						Nonparametric Test			
446					k star (bias corrected)	1.738			Data appear Lognormal at 5% Significance Level			
447					Theta Star	179.2						
448					nu star	48.65						
449					Approximate Chi Square Value (.05)	33.64			Nonparametric Statistics			
450					Adjusted Level of Significance	0.0312				95% CLT UCL		428.7
451					Adjusted Chi Square Value	31.99				95% Jackknife UCL		437.7
452										95% Standard Bootstrap UCL		423.6
453					Anderson-Darling Test Statistic	1.13				95% Bootstrap-t UCL		519.7
454					Anderson-Darling 5% Critical Value	0.745				95% Hall's Bootstrap UCL		438
455					Kolmogorov-Smirnov Test Statistic	0.279				95% Percentile Bootstrap UCL		432.4
456					Kolmogorov-Smirnov 5% Critical Value	0.231				95% BCA Bootstrap UCL		474.9
457			Data not Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL		622.4
458										97.5% Chebyshev(Mean, Sd) UCL		757.1
459			Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL		1022
460					95% Approximate Gamma UCL	450.2						
461					95% Adjusted Gamma UCL	473.4						
462												
463			Potential UCL to Use							Use 95% H-UCL		473.6
464												
465												
466	Vanadium											
467												
468					General Statistics							
469					Number of Valid Samples	14				Number of Detected Data		7
470					Number of Unique Samples	7				Number of Non-Detect Data		7
471										Percent Non-Detects		50.00%
472												
473			Raw Statistics						Log-transformed Statistics			
474					Minimum Detected	0.58				Minimum Detected		-0.545
475					Maximum Detected	3.2				Maximum Detected		1.163
476					Mean of Detected	1.31				Mean of Detected		0.107
477					SD of Detected	0.918				SD of Detected		0.579

	A	B	C	D	E	F	G	H	I	J	K	L
478					Minimum Non-Detect	0.7					Minimum Non-Detect	-0.357
479					Maximum Non-Detect	50					Maximum Non-Detect	3.912
480												
481	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
482	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
483	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
484												
485					**UCL Statistics**							
486				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
487					Shapiro Wilk Test Statistic	0.762					Shapiro Wilk Test Statistic	0.897
488					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
489				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
490												
491				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
492					DL/2 Substitution Method						DL/2 Substitution Method	
493					Mean	2.591					Mean	-0.166
494					SD	6.498					SD	1.199
495					95% DL/2 (t) UCL	5.666					95% H-Stat (DL/2) UCL	5.62
496												
497					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
498											Mean in Log Scale	-0.347
499											SD in Log Scale	0.671
500											Mean in Original Scale	0.894
501											SD in Original Scale	0.768
502											95% Percentile Bootstrap UCL	1.256
503											95% BCA Bootstrap UCL	1.356
504												
505				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
506					k star (bias corrected)	1.942				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
507					Theta Star	0.675						
508					nu star	27.19						
509												
510					A-D Test Statistic	0.583				**Nonparametric Statistics**		
511					5% A-D Critical Value	0.712					Kaplan-Meier (KM) Method	
512					K-S Test Statistic	0.712					Mean	0.973
513					5% K-S Critical Value	0.314					SD	0.722
514				**Data follow approximate Gamma Distribution at 5% Significance Level**							SE of Mean	0.216
515											95% KM (t) UCL	1.356
516				**Assuming Gamma Distribution**							95% KM (z) UCL	1.329
517					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1.31
518					Minimum	N/A					95% KM (bootstrap t) UCL	2.249
519					Maximum	N/A					95% KM (BCA) UCL	1.527
520					Mean	N/A					95% KM (percentile) UCL	1.399
521					Median	N/A					95% KM (Chebyshev) UCL	1.916
522					SD	N/A					97.5% KM (Chebyshev) UCL	2.324
523					k star	N/A					99% KM (Chebyshev) UCL	3.126
524					Theta star	N/A						
525					Nu star	N/A				**Potential UCLs to Use**		
526					AppChi2	N/A					95% KM (t) UCL	1.356
527					95% Gamma Approximate UCL	N/A						
528					95% Adjusted Gamma UCL	N/A						
529												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2		User Selected Options										
3			From File	H:\JCV\Puritan\2007\EPCs\Sediment\un_isl_pond_ucl_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	Acetophenone											
10												
11				General Statistics								
12			Number of Valid Samples			17			Number of Detected Data			1
13			Number of Unique Samples			1			Number of Non-Detect Data			16
14									Percent Non-Detects			94.12%
15												
16			Raw Statistics						Log-transformed Statistics			
17			Minimum Detected			44			Minimum Detected			3.784
18			Maximum Detected			44			Maximum Detected			3.784
19			Mean of Detected			44			Mean of Detected			3.784
20			SD of Detected			N/A			SD of Detected			N/A
21			Minimum Non-Detect			110			Minimum Non-Detect			4.7
22			Maximum Non-Detect			530			Maximum Non-Detect			6.273
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended								Number treated as Non-Detect			17
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),								Number treated as Detected			0
26	those Observations < Largest ND are treated as NDs								Single DL Non-Detect Percentage			100.00%
27												
28				UCL Statistics								
29			Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only			
30			Shapiro Wilk Test Statistic			N/A			Shapiro Wilk Test Statistic			N/A
31			5% Shapiro Wilk Critical Value			N/A			5% Shapiro Wilk Critical Value			N/A
32			Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level			
33												
34			Assuming Normal Distribution						Assuming Lognormal Distribution			
35			DL/2 Substitution Method						DL/2 Substitution Method			
36			Mean			177.6			Mean			5.065
37			SD			69.49			SD			0.557
38			95% DL/2 (t) UCL			207			95% H-Stat (DL/2) UCL			304.6
39												
40			Maximum Likelihood Estimate(MLE) Method			N/A			Robust ROS Method			
41									Mean in Log Scale			N/A
42									SD in Log Scale			N/A
43									Mean in Original Scale			N/A
44									SD in Original Scale			N/A
45									95% Percentile Bootstrap UCL			N/A
46									95% BCA Bootstrap UCL			N/A
47												
48			Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only			
49			Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)			
50												
51												
52			Potential UCLs to Use						Nonparametric Statistics			
53			99% KM (Chebyshev) UCL			44			Kaplan-Meier (KM) Method			

	A	B	C	D	E	F	G	H	I	J	K	L
54											Mean	44
55											SD	0
56											SE of Mean	0
57											95% KM (t) UCL	44
58											95% KM (z) UCL	44
59											95% KM (jackknife) UCL	7020
60											95% KM (bootstrap t) UCL	N/A
61											95% KM (BCA) UCL	1E+31
62											95% KM (percentile) UCL	1E+31
63											95% KM (Chebyshev) UCL	44
64											97.5% KM (Chebyshev) UCL	44
65											99% KM (Chebyshev) UCL	44
66												
67												
68	bis(2-Ethylhexyl)phthalate											
69												
70					General Statistics							
71					Number of Valid Samples	17					Number of Detected Data	16
72					Number of Unique Samples	15					Number of Non-Detect Data	1
73											Percent Non-Detects	5.88%
74												
75					Raw Statistics						Log-transformed Statistics	
76					Minimum Detected	60					Minimum Detected	4.094
77					Maximum Detected	20000					Maximum Detected	9.903
78					Mean of Detected	3045					Mean of Detected	6.467
79					SD of Detected	5572					SD of Detected	1.852
80					Minimum Non-Detect	530					Minimum Non-Detect	6.273
81					Maximum Non-Detect	530					Maximum Non-Detect	6.273
82												
83												
84					UCL Statistics							
85					Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only	
86					Shapiro Wilk Test Statistic	0.61					Shapiro Wilk Test Statistic	0.919
87					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
88					Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level	
89												
90					Assuming Normal Distribution						Assuming Lognormal Distribution	
91					DL/2 Substitution Method						DL/2 Substitution Method	
92					Mean	2882					Mean	6.414
93					SD	5437					SD	1.806
94					95% DL/2 (t) UCL	5184					95% H-Stat (DL/2) UCL	20965
95												
96					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
97					Mean	-2196					Mean in Log Scale	6.399
98					SD	9884					SD in Log Scale	1.815
99					95% MLE (t) UCL	1989					Mean in Original Scale	2878
100					95% MLE (Tiku) UCL	3646					SD in Original Scale	5439
101											95% Percentile Bootstrap UCL	5140
102											95% BCA Bootstrap UCL	5906
103												
104					Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only	
105					k star (bias corrected)	0.383					Data appear Lognormal at 5% Significance Level	
106					Theta Star	7953						

	A	B	C	D	E	F	G	H	I	J	K	L
107					nu star	12.25						
108												
109					A-D Test Statistic	1.08	**Nonparametric Statistics**					
110					5% A-D Critical Value	0.813				Kaplan-Meier (KM) Method		
111					K-S Test Statistic	0.813					Mean	2877
112					5% K-S Critical Value	0.229					SD	5277
113	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	1322
114											95% KM (t) UCL	5185
115			**Assuming Gamma Distribution**								95% KM (z) UCL	5052
116				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	5181
117					Minimum	0					95% KM (bootstrap t) UCL	7510
118					Maximum	20000					95% KM (BCA) UCL	5237
119					Mean	2764					95% KM (percentile) UCL	5152
120					Median	0					95% KM (Chebyshev) UCL	8639
121					SD	5499					97.5% KM (Chebyshev) UCL	11133
122					k star	0.0821					99% KM (Chebyshev) UCL	16030
123					Theta star	33647						
124					Nu star	2.793	**Potential UCLs to Use**					
125					AppChi2	0.314					99% KM (Chebyshev) UCL	16030
126					95% Gamma Approximate UCL	24599						
127					95% Adjusted Gamma UCL	30936						
128												
129												
130	**Benzo(a)pyrene**											
131												
132					**General Statistics**							
133					Number of Valid Samples	17					Number of Detected Data	16
134					Number of Unique Samples	15					Number of Non-Detect Data	1
135											Percent Non-Detects	5.88%
136												
137				**Raw Statistics**						**Log-transformed Statistics**		
138					Minimum Detected	315					Minimum Detected	5.753
139					Maximum Detected	6700					Maximum Detected	8.81
140					Mean of Detected	1557					Mean of Detected	6.99
141					SD of Detected	1584					SD of Detected	0.856
142					Minimum Non-Detect	3.7					Minimum Non-Detect	1.308
143					Maximum Non-Detect	3.7					Maximum Non-Detect	1.308
144												
145												
146					**UCL Statistics**							
147				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
148					Shapiro Wilk Test Statistic	0.719					Shapiro Wilk Test Statistic	0.957
149					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
150				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
151												
152				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
153					DL/2 Substitution Method						DL/2 Substitution Method	
154					Mean	1465					Mean	6.615
155					SD	1579					SD	1.754
156					95% DL/2 (t) UCL	2134					95% H-Stat (DL/2) UCL	11521
157												
158					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
159					Mean	1413					Mean in Log Scale	6.866

	A	B	C	D	E	F	G	H	I	J	K	L
160					SD	1604					SD in Log Scale	0.974
161					95% MLE (t) UCL	2093					Mean in Original Scale	1473
162					95% MLE (Tiku) UCL	2061					SD in Original Scale	1572
163											95% Percentile Bootstrap UCL	2164
164											95% BCA Bootstrap UCL	2410
165												
166				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
167					k star (bias corrected)	1.287				Data appear Gamma Distributed at 5% Significance Level		
168					Theta Star	1210						
169					nu star	41.18						
170												
171					A-D Test Statistic	0.415				Nonparametric Statistics		
172					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
173					K-S Test Statistic	0.754					Mean	1484
174					5% K-S Critical Value	0.219					SD	1516
175				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	379.8
176											95% KM (t) UCL	2147
177				Assuming Gamma Distribution							95% KM (z) UCL	2108
178					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2142
179					Minimum	0					95% KM (bootstrap t) UCL	2714
180					Maximum	6700					95% KM (BCA) UCL	2144
181					Mean	1465					95% KM (percentile) UCL	2165
182					Median	1100					95% KM (Chebyshev) UCL	3139
183					SD	1579					97.5% KM (Chebyshev) UCL	3855
184					k star	0.326					99% KM (Chebyshev) UCL	5262
185					Theta star	4489						
186					Nu star	11.1				Potential UCLs to Use		
187					AppChi2	4.637					95% KM (Chebyshev) UCL	3139
188					95% Gamma Approximate UCL	3505						
189					95% Adjusted Gamma UCL	3863						
190												
191												
192	Benzo(b)fluoranthene											
193												
194						General Statistics						
195					Number of Valid Samples	15					Number of Detected Data	14
196					Number of Unique Samples	11					Number of Non-Detect Data	1
197											Percent Non-Detects	6.67%
198												
199				Raw Statistics						Log-transformed Statistics		
200					Minimum Detected	350					Minimum Detected	5.858
201					Maximum Detected	3200					Maximum Detected	8.071
202					Mean of Detected	1487					Mean of Detected	7.03
203					SD of Detected	1056					SD of Detected	0.8
204					Minimum Non-Detect	3.7					Minimum Non-Detect	1.308
205					Maximum Non-Detect	3.7					Maximum Non-Detect	1.308
206												
207												
208						UCL Statistics						
209				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
210					Shapiro Wilk Test Statistic	0.86					Shapiro Wilk Test Statistic	0.894
211					5% Shapiro Wilk Critical Value	0.874					5% Shapiro Wilk Critical Value	0.874
212				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
215					DL/2 Substitution Method						DL/2 Substitution Method	
216					Mean	1388					Mean	6.602
217					SD	1087					SD	1.827
218					95% DL/2 (t) UCL	1883					95% H-Stat (DL/2) UCL	15684
219												
220					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
221					Mean	1352					Mean in Log Scale	6.902
222					SD	1111					SD in Log Scale	0.917
223					95% MLE (t) UCL	1858					Mean in Original Scale	1399
224					95% MLE (Tiku) UCL	1851					SD in Original Scale	1073
225											95% Percentile Bootstrap UCL	1858
226											95% BCA Bootstrap UCL	1875
227												
228	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
229					k star (bias corrected)	1.596	**Data appear Gamma Distributed at 5% Significance Level**					
230					Theta Star	931.9						
231					nu star	44.68						
232												
233					A-D Test Statistic	0.671	**Nonparametric Statistics**					
234					5% A-D Critical Value	0.746					Kaplan-Meier (KM) Method	
235					K-S Test Statistic	0.746					Mean	1411
236					5% K-S Critical Value	0.232					SD	1023
237	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	274.1
238											95% KM (t) UCL	1894
239	**Assuming Gamma Distribution**										95% KM (z) UCL	1862
240					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	1889
241					Minimum	111.4					95% KM (bootstrap t) UCL	2012
242					Maximum	3200					95% KM (BCA) UCL	1878
243					Mean	1395					95% KM (percentile) UCL	1872
244					Median	1100					95% KM (Chebyshev) UCL	2606
245					SD	1078					97.5% KM (Chebyshev) UCL	3123
246					k star	1.255					99% KM (Chebyshev) UCL	4139
247					Theta star	1112						
248					Nu star	37.65	**Potential UCLs to Use**					
249					AppChi2	24.6					95% KM (Chebyshev) UCL	2606
250					95% Gamma Approximate UCL	2136						
251					95% Adjusted Gamma UCL	2254						
252												
253												
254	**Benzo[a]anthracene**											
255												
256					**General Statistics**							
257					Number of Valid Samples	17					Number of Detected Data	16
258					Number of Unique Samples	15					Number of Non-Detect Data	1
259											Percent Non-Detects	5.88%
260												
261	**Raw Statistics**						**Log-transformed Statistics**					
262					Minimum Detected	330					Minimum Detected	5.799
263					Maximum Detected	7100					Maximum Detected	8.868
264					Mean of Detected	1466					Mean of Detected	6.896
265					SD of Detected	1678					SD of Detected	0.862

	A	B	C	D	E	F	G	H	I	J	K	L
266					Minimum Non-Detect	3.7					Minimum Non-Detect	1.308
267					Maximum Non-Detect	3.7					Maximum Non-Detect	1.308
268												
269												
270						UCL Statistics						
271				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
272					Shapiro Wilk Test Statistic	0.655					Shapiro Wilk Test Statistic	0.945
273					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
274				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
275												
276				Assuming Normal Distribution						Assuming Lognormal Distribution		
277					DL/2 Substitution Method						DL/2 Substitution Method	
278					Mean	1380					Mean	6.527
279					SD	1663					SD	1.737
280					95% DL/2 (t) UCL	2084					95% H-Stat (DL/2) UCL	9973
281												
282					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
283					Mean	1323					Mean in Log Scale	6.772
284					SD	1688					SD in Log Scale	0.98
285					95% MLE (t) UCL	2038					Mean in Original Scale	1387
286					95% MLE (Tiku) UCL	1998					SD in Original Scale	1657
287											95% Percentile Bootstrap UCL	2069
288											95% BCA Bootstrap UCL	2455
289												
290				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
291					k star (bias corrected)	1.188				Data appear Gamma Distributed at 5% Significance Level		
292					Theta Star	1234						
293					nu star	38.02						
294												
295					A-D Test Statistic	0.579				Nonparametric Statistics		
296					5% A-D Critical Value	0.756					Kaplan-Meier (KM) Method	
297					K-S Test Statistic	0.756					Mean	1399
298					5% K-S Critical Value	0.219					SD	1599
299				Data appear Gamma Distributed at 5% Significance Level							SE of Mean	400.4
300											95% KM (t) UCL	2099
301				Assuming Gamma Distribution							95% KM (z) UCL	2058
302					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	2096
303					Minimum	0					95% KM (bootstrap t) UCL	2896
304					Maximum	7100					95% KM (BCA) UCL	2132
305					Mean	1380					95% KM (percentile) UCL	2086
306					Median	840					95% KM (Chebyshev) UCL	3145
307					SD	1663					97.5% KM (Chebyshev) UCL	3900
308					k star	0.323					99% KM (Chebyshev) UCL	5384
309					Theta star	4276						
310					Nu star	10.97				Potential UCLs to Use		
311					AppChi2	4.558					95% KM (Chebyshev) UCL	3145
312					95% Gamma Approximate UCL	3322						
313					95% Adjusted Gamma UCL	3664						
314												
315												
316	Dibenz[a,h]anthracene											
317												
318						General Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
319					Number of Valid Samples	17					Number of Detected Data	13
320					Number of Unique Samples	11					Number of Non-Detect Data	4
321											Percent Non-Detects	23.53%
322												
323				**Raw Statistics**						**Log-transformed Statistics**		
324					Minimum Detected	42					Minimum Detected	3.738
325					Maximum Detected	920					Maximum Detected	6.824
326					Mean of Detected	252.7					Mean of Detected	5.083
327					SD of Detected	256.1					SD of Detected	0.997
328					Minimum Non-Detect	3.7					Minimum Non-Detect	1.308
329					Maximum Non-Detect	480					Maximum Non-Detect	6.174
330												
331	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	14
332	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	3
333	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	82.35%
334												
335					**UCL Statistics**							
336				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
337					Shapiro Wilk Test Statistic	0.8					Shapiro Wilk Test Statistic	0.949
338					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
339				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
340												
341				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
342					DL/2 Substitution Method						DL/2 Substitution Method	
343					Mean	231.9					Mean	4.872
344					SD	230.3					SD	1.402
345					95% DL/2 (t) UCL	329.4					95% H-Stat (DL/2) UCL	1567
346												
347					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
348					Mean	155.5					Mean in Log Scale	4.851
349					SD	338.2					SD in Log Scale	1.039
350					95% MLE (t) UCL	298.7					Mean in Original Scale	210.7
351					95% MLE (Tiku) UCL	542.5					SD in Original Scale	235.8
352											95% Percentile Bootstrap UCL	307.1
353											95% BCA Bootstrap UCL	339.9
354												
355				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
356					k star (bias corrected)	1.015				**Data appear Gamma Distributed at 5% Significance Level**		
357					Theta Star	249						
358					nu star	26.39						
359												
360					A-D Test Statistic	0.403				**Nonparametric Statistics**		
361					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
362					K-S Test Statistic	0.754					Mean	217.1
363					5% K-S Critical Value	0.242					SD	228.3
364				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	58.59
365											95% KM (t) UCL	319.3
366				**Assuming Gamma Distribution**							95% KM (z) UCL	313.4
367					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	318.6
368					Minimum	N/A					95% KM (bootstrap t) UCL	378.7
369					Maximum	N/A					95% KM (BCA) UCL	327.6
370					Mean	N/A					95% KM (percentile) UCL	316.9
371					Median	N/A					95% KM (Chebyshev) UCL	472.4

	A	B	C	D	E	F	G	H	I	J	K	L
372					SD	N/A				97.5% KM (Chebyshev) UCL		582.9
373					k star	N/A				99% KM (Chebyshev) UCL		800
374					Theta star	N/A						
375					Nu star	N/A	**Potential UCLs to Use**					
376					AppChi2	N/A				95% KM (BCA) UCL		327.6
377				95% Gamma Approximate UCL		N/A						
378				95% Adjusted Gamma UCL		N/A						
379												
380												
381	**Indeno(1,2,3-cd)pyrene**											
382												
383					**General Statistics**							
384				Number of Valid Samples		17				Number of Detected Data		16
385				Number of Unique Samples		13				Number of Non-Detect Data		1
386										Percent Non-Detects		5.88%
387												
388				**Raw Statistics**			**Log-transformed Statistics**					
389				Minimum Detected		130				Minimum Detected		4.868
390				Maximum Detected		1400				Maximum Detected		7.244
391				Mean of Detected		608.4				Mean of Detected		6.134
392				SD of Detected		447.5				SD of Detected		0.8
393				Minimum Non-Detect		3.7				Minimum Non-Detect		1.308
394				Maximum Non-Detect		3.7				Maximum Non-Detect		1.308
395												
396												
397					**UCL Statistics**							
398				**Normal Distribution Test with Detected Values Only**			**Lognormal Distribution Test with Detected Values Only**					
399				Shapiro Wilk Test Statistic		0.847				Shapiro Wilk Test Statistic		0.93
400				5% Shapiro Wilk Critical Value		0.887				5% Shapiro Wilk Critical Value		0.887
401				**Data not Normal at 5% Significance Level**			**Data appear Lognormal at 5% Significance Level**					
402												
403				**Assuming Normal Distribution**			**Assuming Lognormal Distribution**					
404				DL/2 Substitution Method						DL/2 Substitution Method		
405				Mean		572.8				Mean		5.809
406				SD		457.6				SD		1.547
407				95% DL/2 (t) UCL		766.5				95% H-Stat (DL/2) UCL		2782
408												
409				Maximum Likelihood Estimate(MLE) Method						Robust ROS Method		
410				Mean		559.5				Mean in Log Scale		6.019
411				SD		466.2				SD in Log Scale		0.908
412				95% MLE (t) UCL		756.9				Mean in Original Scale		576.5
413				95% MLE (Tiku) UCL		753.1				SD in Original Scale		452.9
414										95% Percentile Bootstrap UCL		757.7
415										95% BCA Bootstrap UCL		791.5
416												
417				**Gamma Distribution Test with Detected Values Only**			**Nonparametic Test with Detected Values Only**					
418				k star (bias corrected)		1.631	**Data appear Gamma Distributed at 5% Significance Level**					
419				Theta Star		373.1						
420				nu star		52.18						
421												
422				A-D Test Statistic		0.435	**Nonparametric Statistics**					
423				5% A-D Critical Value		0.751				Kaplan-Meier (KM) Method		
424				K-S Test Statistic		0.751				Mean		580.3

	A	B	C	D	E	F	G	H	I	J	K	L
425					5% K-S Critical Value	0.218					SD	435.2
426	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	109
427											95% KM (t) UCL	770.6
428			**Assuming Gamma Distribution**								95% KM (z) UCL	759.6
429				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	769.9
430					Minimum	0					95% KM (bootstrap t) UCL	826.7
431					Maximum	1400					95% KM (BCA) UCL	756.5
432					Mean	572.6					95% KM (percentile) UCL	751.2
433					Median	460					95% KM (Chebyshev) UCL	1055
434					SD	457.7					97.5% KM (Chebyshev) UCL	1261
435					k star	0.345					99% KM (Chebyshev) UCL	1665
436					Theta star	1662						
437					Nu star	11.72			**Potential UCLs to Use**			
438					AppChi2	5.042					95% KM (Chebyshev) UCL	1055
439					95% Gamma Approximate UCL	1331						
440					95% Adjusted Gamma UCL	1462						
441												
442												
443	**Aroclor-1254**											
444												
445					**General Statistics**							
446					Number of Valid Samples	17					Number of Detected Data	5
447					Number of Unique Samples	5					Number of Non-Detect Data	12
448											Percent Non-Detects	70.59%
449												
450				**Raw Statistics**						**Log-transformed Statistics**		
451					Minimum Detected	50					Minimum Detected	3.912
452					Maximum Detected	650					Maximum Detected	6.477
453					Mean of Detected	312					Mean of Detected	5.443
454					SD of Detected	230					SD of Detected	0.972
455					Minimum Non-Detect	7.1					Minimum Non-Detect	1.96
456					Maximum Non-Detect	11					Maximum Non-Detect	2.398
457												
458	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	12
459	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	5
460	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	70.59%
461												
462					**UCL Statistics**							
463				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
464					Shapiro Wilk Test Statistic	0.954					Shapiro Wilk Test Statistic	0.927
465					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
466				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
467												
468				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
469					DL/2 Substitution Method						DL/2 Substitution Method	
470					Mean	94.68					Mean	2.596
471					SD	184.8					SD	1.959
472					95% DL/2 (t) UCL	172.9					95% H-Stat (DL/2) UCL	325.8
473												
474					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
475					Mean	-226.5					Mean in Log Scale	2.978
476					SD	452.1					SD in Log Scale	1.78
477					95% MLE (t) UCL	-35.05					Mean in Original Scale	97.56

	A	B	C	D	E	F	G	H	I	J	K	L
478					95% MLE (Tiku) UCL	109.6					SD in Original Scale	183.3
479											95% Percentile Bootstrap UCL	180
480											95% BCA Bootstrap UCL	200.6
481												
482				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
483					k star (bias corrected)	0.859			**Data appear Normal at 5% Significance Level**			
484					Theta Star	363.1						
485					nu star	8.593						
486												
487					A-D Test Statistic	0.239			**Nonparametric Statistics**			
488					5% A-D Critical Value	0.685					Kaplan-Meier (KM) Method	
489					K-S Test Statistic	0.685					Mean	127.1
490					5% K-S Critical Value	0.361					SD	163.4
491				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	44.31
492											95% KM (t) UCL	204.4
493				**Assuming Gamma Distribution**							95% KM (z) UCL	199.9
494					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	231.6
495					Minimum	0					95% KM (bootstrap t) UCL	218
496					Maximum	650					95% KM (BCA) UCL	433.5
497					Mean	94.91					95% KM (percentile) UCL	303.5
498					Median	0					95% KM (Chebyshev) UCL	320.2
499					SD	185					97.5% KM (Chebyshev) UCL	403.8
500					k star	0.0872					99% KM (Chebyshev) UCL	567.9
501					Theta star	1089						
502					Nu star	2.964			**Potential UCLs to Use**			
503					AppChi2	0.362					95% KM (t) UCL	204.4
504					95% Gamma Approximate UCL	777.4					95% KM (Percentile Bootstrap) UCL	303.5
505					95% Adjusted Gamma UCL	975.6						
506												
507												
508	**Aroclor-1260**											
509												
510						**General Statistics**						
511					Number of Valid Samples	16					Number of Detected Data	10
512					Number of Unique Samples	9					Number of Non-Detect Data	6
513											Percent Non-Detects	37.50%
514												
515				**Raw Statistics**					**Log-transformed Statistics**			
516					Minimum Detected	10					Minimum Detected	2.303
517					Maximum Detected	550					Maximum Detected	6.31
518					Mean of Detected	183.1					Mean of Detected	4.765
519					SD of Detected	173					SD of Detected	1.117
520					Minimum Non-Detect	7.5					Minimum Non-Detect	2.015
521					Maximum Non-Detect	9.7					Maximum Non-Detect	2.272
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	10
525	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	37.50%
526												
527						**UCL Statistics**						
528				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
529					Shapiro Wilk Test Statistic	0.805					Shapiro Wilk Test Statistic	0.904
530					5% Shapiro Wilk Critical Value	0.842					5% Shapiro Wilk Critical Value	0.842

	A	B	C	D	E	F	G	H	I	J	K	L
531	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
532												
533	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
534					DL/2 Substitution Method						DL/2 Substitution Method	
535					Mean	116					Mean	3.52
536					SD	161.1					SD	1.873
537					95% DL/2 (t) UCL	186.6					95% H-Stat (DL/2) UCL	726.7
538												
539				Maximum Likelihood Estimate(MLE) Method							Robust ROS Method	
540					Mean	58.35					Mean in Log Scale	3.787
541					SD	220.4					SD in Log Scale	1.572
542					95% MLE (t) UCL	154.9					Mean in Original Scale	117.8
543					95% MLE (Tiku) UCL	164.9					SD in Original Scale	159.8
544											95% Percentile Bootstrap UCL	186.8
545											95% BCA Bootstrap UCL	206.8
546												
547	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
548					k star (bias corrected)	0.951	**Data appear Gamma Distributed at 5% Significance Level**					
549					Theta Star	192.6						
550					nu star	19.02						
551												
552					A-D Test Statistic	0.448	**Nonparametric Statistics**					
553					5% A-D Critical Value	0.744					Kaplan-Meier (KM) Method	
554					K-S Test Statistic	0.744					Mean	118.2
555					5% K-S Critical Value	0.272					SD	154.4
556	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	40.7
557											95% KM (t) UCL	189.5
558	**Assuming Gamma Distribution**										95% KM (z) UCL	185.1
559				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	181.9
560					Minimum	0					95% KM (bootstrap t) UCL	237.1
561					Maximum	550					95% KM (BCA) UCL	221.1
562					Mean	114.4					95% KM (percentile) UCL	199.1
563					Median	78					95% KM (Chebyshev) UCL	295.6
564					SD	162.3					97.5% KM (Chebyshev) UCL	372.3
565					k star	0.112					99% KM (Chebyshev) UCL	523.1
566					Theta star	1021						
567					Nu star	3.587	**Potential UCLs to Use**					
568					AppChi2	0.566					95% KM (BCA) UCL	221.1
569					95% Gamma Approximate UCL	725.6						
570					95% Adjusted Gamma UCL	911.4						
571												
572												
573	**Dieldrin**											
574												
575					**General Statistics**							
576					Number of Valid Samples	14					Number of Detected Data	6
577					Number of Unique Samples	6					Number of Non-Detect Data	8
578											Percent Non-Detects	57.14%
579												
580	**Raw Statistics**						**Log-transformed Statistics**					
581					Minimum Detected	2					Minimum Detected	0.693
582					Maximum Detected	21					Maximum Detected	3.045
583					Mean of Detected	10.53					Mean of Detected	2.011

	A–E	F	G–K	L
584	SD of Detected	8.282	SD of Detected	0.97
585	Minimum Non-Detect	0.72	Minimum Non-Detect	-0.329
586	Maximum Non-Detect	4.445	Maximum Non-Detect	1.492
587				
588	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	11
589	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	3
590	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	78.57%
591				
592	**UCL Statistics**			
593	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
594	Shapiro Wilk Test Statistic	0.862	Shapiro Wilk Test Statistic	0.892
595	5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
596	**Data appear Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
597				
598	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
599	DL/2 Substitution Method		DL/2 Substitution Method	
600	Mean	4.884	Mean	0.481
601	SD	7.237	SD	1.566
602	95% DL/2 (t) UCL	8.309	95% H-Stat (DL/2) UCL	23.99
603				
604	Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
605	Mean	-6.839	Mean in Log Scale	0.541
606	SD	18.32	SD in Log Scale	1.46
607	95% MLE (t) UCL	1.831	Mean in Original Scale	4.848
608	95% MLE (Tiku) UCL	11.54	SD in Original Scale	7.246
609			95% Percentile Bootstrap UCL	8.275
610			95% BCA Bootstrap UCL	8.703
611				
612	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
613	k star (bias corrected)	0.913	**Data appear Normal at 5% Significance Level**	
614	Theta Star	11.54		
615	nu star	10.95		
616				
617	A-D Test Statistic	0.442	**Nonparametric Statistics**	
618	5% A-D Critical Value	0.707	Kaplan-Meier (KM) Method	
619	K-S Test Statistic	0.707	Mean	5.687
620	5% K-S Critical Value	0.337	SD	6.494
621	**Data appear Gamma Distributed at 5% Significance Level**		SE of Mean	1.902
622			95% KM (t) UCL	9.056
623	**Assuming Gamma Distribution**		95% KM (z) UCL	8.816
624	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.584
625	Minimum	N/A	95% KM (bootstrap t) UCL	9.076
626	Maximum	N/A	95% KM (BCA) UCL	14.57
627	Mean	N/A	95% KM (percentile) UCL	10.23
628	Median	N/A	95% KM (Chebyshev) UCL	13.98
629	SD	N/A	97.5% KM (Chebyshev) UCL	17.57
630	k star	N/A	99% KM (Chebyshev) UCL	24.62
631	Theta star	N/A		
632	Nu star	N/A	**Potential UCLs to Use**	
633	AppChi2	N/A	95% KM (t) UCL	9.056
634	95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	10.23
635	95% Adjusted Gamma UCL	N/A		
636				

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	**Aluminum**											
639												
640						**General Statistics**						
641					Number of Valid Samples	17					Number of Unique Samples	17
642												
643				**Raw Statistics**						**Log-transformed Statistics**		
644					Minimum	2310					Minimum of Log Data	7.745
645					Maximum	12000					Maximum of Log Data	9.393
646					Mean	5916					Mean of log Data	8.541
647					Median	4950					SD of log Data	0.563
648					SD	3178						
649					Coefficient of Variation	0.537						
650					Skewness	0.493						
651												
652						**Relevant UCL Statistics**						
653				**Normal Distribution Test**						**Lognormal Distribution Test**		
654					Shapiro Wilk Test Statistic	0.895					Shapiro Wilk Test Statistic	0.907
655					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
656				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
657												
658				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
659					95% Student's-t UCL	7262					95% H-UCL	8076
660				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	9620
661					95% Adjusted-CLT UCL	7283					97.5% Chebyshev (MVUE) UCL	11213
662					95% Modified-t UCL	7277					99% Chebyshev (MVUE) UCL	14343
663												
664				**Gamma Distribution Test**						**Nonparametric Test**		
665					k star (bias corrected)	3.018				**Data appear Normal at 5% Significance Level**		
666					Theta Star	1961						
667					nu star	102.6						
668					Approximate Chi Square Value (.05)	80.23				**Nonparametric Statistics**		
669					Adjusted Level of Significance	0.0346					95% CLT UCL	7184
670					Adjusted Chi Square Value	78.16					95% Jackknife UCL	7262
671											95% Standard Bootstrap UCL	7197
672					Anderson-Darling Test Statistic	0.661					95% Bootstrap-t UCL	7431
673					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	7246
674					Kolmogorov-Smirnov Test Statistic	0.178					95% Percentile Bootstrap UCL	7199
675					Kolmogorov-Smirnov 5% Critical Value	0.21					95% BCA Bootstrap UCL	7231
676				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	9276
677											97.5% Chebyshev(Mean, Sd) UCL	10730
678				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	13586
679					95% Approximate Gamma UCL	7566						
680					95% Adjusted Gamma UCL	7766						
681												
682				**Potential UCL to Use**							Use 95% Student's-t UCL	7262
683												
684												
685	**Antimony**											
686												
687						**General Statistics**						
688					Number of Valid Samples	17					Number of Detected Data	13
689					Number of Unique Samples	12					Number of Non-Detect Data	4

	A	B	C	D	E	F	G	H	I	J	K	L
690											Percent Non-Detects	23.53%
691												
692				**Raw Statistics**						**Log-transformed Statistics**		
693					Minimum Detected	0.27					Minimum Detected	-1.309
694					Maximum Detected	18.9					Maximum Detected	2.939
695					Mean of Detected	2.833					Mean of Detected	0.294
696					SD of Detected	5.023					SD of Detected	1.122
697					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
698					Maximum Non-Detect	0.56					Maximum Non-Detect	-0.58
699												
700	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	7
701	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	10
702	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	41.18%
703												
704					**UCL Statistics**							
705				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
706					Shapiro Wilk Test Statistic	0.515					Shapiro Wilk Test Statistic	0.935
707					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
708				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
709												
710				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
711					DL/2 Substitution Method						DL/2 Substitution Method	
712					Mean	2.219					Mean	-0.13
713					SD	4.497					SD	1.254
714					95% DL/2 (t) UCL	4.123					95% H-Stat (DL/2) UCL	3.941
715												
716					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
717					Mean	0.256					Mean in Log Scale	-0.167
718					SD	6.156					SD in Log Scale	1.298
719					95% MLE (t) UCL	2.863					Mean in Original Scale	2.211
720					95% MLE (Tiku) UCL	3.223					SD in Original Scale	4.501
721											95% Percentile Bootstrap UCL	4.324
722											95% BCA Bootstrap UCL	5.582
723												
724				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
725					k star (bias corrected)	0.663				**Data appear Lognormal at 5% Significance Level**		
726					Theta Star	4.272						
727					nu star	17.24						
728												
729					A-D Test Statistic	1.052				**Nonparametric Statistics**		
730					5% A-D Critical Value	0.768					Kaplan-Meier (KM) Method	
731					K-S Test Statistic	0.768					Mean	2.234
732					5% K-S Critical Value	0.245					SD	4.356
733				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	1.1
734											95% KM (t) UCL	4.154
735				**Assuming Gamma Distribution**							95% KM (z) UCL	4.043
736					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	4.103
737					Minimum	0					95% KM (bootstrap t) UCL	11.93
738					Maximum	18.9					95% KM (BCA) UCL	4.549
739					Mean	2.094					95% KM (percentile) UCL	4.241
740					Median	0.77					95% KM (Chebyshev) UCL	7.027
741					SD	4.555					97.5% KM (Chebyshev) UCL	9.101
742					k star	0.115					99% KM (Chebyshev) UCL	13.18

	A	B	C	D	E	F	G	H	I	J	K	L
743					Theta star	18.17						
744					Nu star	3.919	**Potential UCLs to Use**					
745					AppChi2	0.69					97.5% KM (Chebyshev) UCL	9.101
746				95% Gamma Approximate UCL		11.9						
747				95% Adjusted Gamma UCL		14.51						
748												
749												
750	**Arsenic**											
751												
752					**General Statistics**							
753					Number of Valid Samples	17					Number of Detected Data	16
754					Number of Unique Samples	15					Number of Non-Detect Data	1
755											Percent Non-Detects	5.88%
756												
757				**Raw Statistics**						**Log-transformed Statistics**		
758					Minimum Detected	1.1					Minimum Detected	0.0953
759					Maximum Detected	21.5					Maximum Detected	3.068
760					Mean of Detected	9.759					Mean of Detected	1.981
761					SD of Detected	6.625					SD of Detected	0.894
762					Minimum Non-Detect	0.44					Minimum Non-Detect	-0.821
763					Maximum Non-Detect	0.44					Maximum Non-Detect	-0.821
764												
765												
766					**UCL Statistics**							
767				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
768					Shapiro Wilk Test Statistic	0.928					Shapiro Wilk Test Statistic	0.917
769					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
770				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
771												
772				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
773					DL/2 Substitution Method						DL/2 Substitution Method	
774					Mean	9.198					Mean	1.775
775					SD	6.819					SD	1.212
776					95% DL/2 (t) UCL	12.09					95% H-Stat (DL/2) UCL	22.79
777												
778					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
779					Mean	9.015					Mean in Log Scale	1.856
780					SD	6.934					SD in Log Scale	1.007
781					95% MLE (t) UCL	11.95					Mean in Original Scale	9.236
782					95% MLE (Tiku) UCL	11.91					SD in Original Scale	6.767
783											95% Percentile Bootstrap UCL	11.94
784											95% BCA Bootstrap UCL	12.02
785												
786				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
787					k star (bias corrected)	1.529				**Data appear Normal at 5% Significance Level**		
788					Theta Star	6.385						
789					nu star	48.91						
790												
791					A-D Test Statistic	0.304				**Nonparametric Statistics**		
792					5% A-D Critical Value	0.752					Kaplan-Meier (KM) Method	
793					K-S Test Statistic	0.752					Mean	9.25
794					5% K-S Critical Value	0.218					SD	6.548
795				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	1.64

	A	B	C	D	E	F	G	H	I	J	K	L
796											95% KM (t) UCL	12.11
797				**Assuming Gamma Distribution**							95% KM (z) UCL	11.95
798					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	12.09
799					Minimum	1.1					95% KM (bootstrap t) UCL	12.17
800					Maximum	21.5					95% KM (BCA) UCL	11.83
801					Mean	9.288					95% KM (percentile) UCL	11.97
802					Median	7.3					95% KM (Chebyshev) UCL	16.4
803					SD	6.703					97.5% KM (Chebyshev) UCL	19.49
804					k star	1.401					99% KM (Chebyshev) UCL	25.57
805					Theta star	6.627						
806					Nu star	47.65				**Potential UCLs to Use**		
807					AppChi2	32.81					95% KM (t) UCL	12.11
808					95% Gamma Approximate UCL	13.49					95% KM (Percentile Bootstrap) UCL	11.97
809					95% Adjusted Gamma UCL	14.04						
810												
811												
812	**Barium**											
813												
814					**General Statistics**							
815					Number of Valid Samples	17					Number of Detected Data	13
816					Number of Unique Samples	13					Number of Non-Detect Data	4
817											Percent Non-Detects	23.53%
818												
819				**Raw Statistics**						**Log-transformed Statistics**		
820					Minimum Detected	15.4					Minimum Detected	2.734
821					Maximum Detected	617					Maximum Detected	6.425
822					Mean of Detected	140.5					Mean of Detected	4.366
823					SD of Detected	182.1					SD of Detected	1.082
824					Minimum Non-Detect	36					Minimum Non-Detect	3.584
825					Maximum Non-Detect	46					Maximum Non-Detect	3.829
826												
827	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	7
828	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	10
829	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	41.18%
830												
831					**UCL Statistics**							
832				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
833					Shapiro Wilk Test Statistic	0.663					Shapiro Wilk Test Statistic	0.955
834					5% Shapiro Wilk Critical Value	0.866					5% Shapiro Wilk Critical Value	0.866
835				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
836												
837				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
838					DL/2 Substitution Method						DL/2 Substitution Method	
839					Mean	112.4					Mean	4.056
840					SD	166.1					SD	1.101
841					95% DL/2 (t) UCL	182.7					95% H-Stat (DL/2) UCL	188.1
842												
843					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
844					Mean	48.99					Mean in Log Scale	4.034
845					SD	225.4					SD in Log Scale	1.122
846					95% MLE (t) UCL	144.4					Mean in Original Scale	111.9
847					95% MLE (Tiku) UCL	157.3					SD in Original Scale	166.4
848											95% Percentile Bootstrap UCL	182.9

	A	B	C	D	E	F	G	H	I	J	K	L
849											95% BCA Bootstrap UCL	210.2
850												
851	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
852					k star (bias corrected)	0.818	**Data appear Gamma Distributed at 5% Significance Level**					
853					Theta Star	171.7						
854					nu star	21.28						
855												
856					A-D Test Statistic	0.678	**Nonparametric Statistics**					
857					5% A-D Critical Value	0.758					Kaplan-Meier (KM) Method	
858					K-S Test Statistic	0.758					Mean	112.5
859					5% K-S Critical Value	0.243					SD	161.1
860	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	40.69
861											95% KM (t) UCL	183.5
862			**Assuming Gamma Distribution**								95% KM (z) UCL	179.4
863					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	182.9
864					Minimum	0					95% KM (bootstrap t) UCL	346.2
865					Maximum	617					95% KM (BCA) UCL	191.2
866					Mean	103.7					95% KM (percentile) UCL	186.4
867					Median	54					95% KM (Chebyshev) UCL	289.9
868					SD	171.4					97.5% KM (Chebyshev) UCL	366.6
869					k star	0.105					99% KM (Chebyshev) UCL	517.4
870					Theta star	983.2						
871					Nu star	3.585	**Potential UCLs to Use**					
872					AppChi2	0.565					95% KM (Chebyshev) UCL	289.9
873					95% Gamma Approximate UCL	657.9						
874					95% Adjusted Gamma UCL	811.3						
875												
876												
877	**Cadmium**											
878												
879					**General Statistics**							
880					Number of Valid Samples	17					Number of Unique Samples	17
881												
882			**Raw Statistics**				**Log-transformed Statistics**					
883					Minimum	0.45					Minimum of Log Data	-0.799
884					Maximum	25					Maximum of Log Data	3.219
885					Mean	7.819					Mean of log Data	1.388
886					Median	4.3					SD of log Data	1.351
887					SD	7.631						
888					Coefficient of Variation	0.976						
889					Skewness	0.834						
890												
891					**Relevant UCL Statistics**							
892			**Normal Distribution Test**				**Lognormal Distribution Test**					
893					Shapiro Wilk Test Statistic	0.863					Shapiro Wilk Test Statistic	0.919
894					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
895	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
896												
897			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
898					95% Student's-t UCL	11.05					95% H-UCL	29.91
899			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	24.08
900					95% Adjusted-CLT UCL	11.26					97.5% Chebyshev (MVUE) UCL	30.56
901					95% Modified-t UCL	11.11					99% Chebyshev (MVUE) UCL	43.29

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903	**Gamma Distribution Test**						**Nonparametric Test**					
904					k star (bias corrected)	0.762	**Data appear Gamma Distributed at 5% Significance Level**					
905					Theta Star	10.26						
906					nu star	25.9						
907					Approximate Chi Square Value (.05)	15.3	**Nonparametric Statistics**					
908					Adjusted Level of Significance	0.0346					95% CLT UCL	10.86
909					Adjusted Chi Square Value	14.45					95% Jackknife UCL	11.05
910											95% Standard Bootstrap UCL	10.76
911					Anderson-Darling Test Statistic	0.499					95% Bootstrap-t UCL	11.63
912					Anderson-Darling 5% Critical Value	0.771					95% Hall's Bootstrap UCL	11.17
913					Kolmogorov-Smirnov Test Statistic	0.17					95% Percentile Bootstrap UCL	10.79
914					Kolmogorov-Smirnov 5% Critical Value	0.216					95% BCA Bootstrap UCL	10.86
915	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	15.89
916											97.5% Chebyshev(Mean, Sd) UCL	19.38
917	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	26.23
918					95% Approximate Gamma UCL	13.23						
919					95% Adjusted Gamma UCL	14.01						
920												
921	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	13.23
922												
923												
924	**Chromium**											
925												
926					**General Statistics**							
927					Number of Valid Samples	17					Number of Unique Samples	17
928												
929	**Raw Statistics**						**Log-transformed Statistics**					
930					Minimum	4.8					Minimum of Log Data	1.569
931					Maximum	354					Maximum of Log Data	5.869
932					Mean	103.2					Mean of log Data	4.063
933					Median	70.1					SD of log Data	1.25
934					SD	100.1						
935					Coefficient of Variation	0.971						
936					Skewness	1.237						
937												
938					**Relevant UCL Statistics**							
939	**Normal Distribution Test**						**Lognormal Distribution Test**					
940					Shapiro Wilk Test Statistic	0.865					Shapiro Wilk Test Statistic	0.959
941					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
942	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
943												
944	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
945					95% Student's-t UCL	145.6					95% H-UCL	332.7
946	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	295.6
947					95% Adjusted-CLT UCL	150.9					97.5% Chebyshev (MVUE) UCL	372.4
948					95% Modified-t UCL	146.8					99% Chebyshev (MVUE) UCL	523.3
949												
950	**Gamma Distribution Test**						**Nonparametric Test**					
951					k star (bias corrected)	0.868	**Data appear Gamma Distributed at 5% Significance Level**					
952					Theta Star	118.9						
953					nu star	29.5						
954					Approximate Chi Square Value (.05)	18.1	**Nonparametric Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
955					Adjusted Level of Significance	0.0346					95% CLT UCL	143.1
956					Adjusted Chi Square Value	17.16					95% Jackknife UCL	145.6
957											95% Standard Bootstrap UCL	141.3
958					Anderson-Darling Test Statistic	0.161					95% Bootstrap-t UCL	156.3
959					Anderson-Darling 5% Critical Value	0.766					95% Hall's Bootstrap UCL	160.4
960					Kolmogorov-Smirnov Test Statistic	0.0971					95% Percentile Bootstrap UCL	142.7
961					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	148.2
962					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	209.1
963											97.5% Chebyshev(Mean, Sd) UCL	254.9
964					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	344.9
965					95% Approximate Gamma UCL	168.2						
966					95% Adjusted Gamma UCL	177.3						
967												
968					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	168.2
969												
970												
971	**Copper**											
972												
973					**General Statistics**							
974					Number of Valid Samples	17					Number of Detected Data	16
975					Number of Unique Samples	16					Number of Non-Detect Data	1
976											Percent Non-Detects	5.88%
977												
978					**Raw Statistics**						**Log-transformed Statistics**	
979					Minimum Detected	12.7					Minimum Detected	2.542
980					Maximum Detected	653					Maximum Detected	6.482
981					Mean of Detected	156.2					Mean of Detected	4.464
982					SD of Detected	174.9					SD of Detected	1.183
983					Minimum Non-Detect	5.5					Minimum Non-Detect	1.705
984					Maximum Non-Detect	5.5					Maximum Non-Detect	1.705
985												
986												
987					**UCL Statistics**							
988					**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**	
989					Shapiro Wilk Test Statistic	0.781					Shapiro Wilk Test Statistic	0.969
990					5% Shapiro Wilk Critical Value	0.887					5% Shapiro Wilk Critical Value	0.887
991					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
992												
993					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
994					DL/2 Substitution Method						DL/2 Substitution Method	
995					Mean	147.2					Mean	4.261
996					SD	173.4					SD	1.419
997					95% DL/2 (t) UCL	220.6					95% H-Stat (DL/2) UCL	472.2
998												
999					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1000					Mean	141.4					Mean in Log Scale	4.292
1001					SD	175.9					SD in Log Scale	1.348
1002					95% MLE (t) UCL	215.9					Mean in Original Scale	147.3
1003					95% MLE (Tiku) UCL	211.7					SD in Original Scale	173.3
1004											95% Percentile Bootstrap UCL	220.8
1005											95% BCA Bootstrap UCL	231.5
1006												
1007					**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**	

	A	B	C	D	E	F	G	H	I	J	K	L
1008					k star (bias corrected)	0.842	Data appear Gamma Distributed at 5% Significance Level					
1009					Theta Star	185.5						
1010					nu star	26.94						
1011												
1012					A-D Test Statistic	0.26	Nonparametric Statistics					
1013					5% A-D Critical Value	0.764					Kaplan-Meier (KM) Method	
1014					K-S Test Statistic	0.764					Mean	147.8
1015					5% K-S Critical Value	0.221					SD	167.8
1016	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	42.02
1017											95% KM (t) UCL	221.1
1018	Assuming Gamma Distribution										95% KM (z) UCL	216.9
1019			Gamma ROS Statistics using Extrapolated Data								95% KM (jackknife) UCL	220.9
1020					Minimum	0					95% KM (bootstrap t) UCL	282.7
1021					Maximum	653					95% KM (BCA) UCL	222.7
1022					Mean	147					95% KM (percentile) UCL	216.6
1023					Median	70.5					95% KM (Chebyshev) UCL	330.9
1024					SD	173.6					97.5% KM (Chebyshev) UCL	410.2
1025					k star	0.317					99% KM (Chebyshev) UCL	565.9
1026					Theta star	464.2						
1027					Nu star	10.77	Potential UCLs to Use					
1028					AppChi2	4.427					95% KM (Chebyshev) UCL	330.9
1029					95% Gamma Approximate UCL	357.6						
1030					95% Adjusted Gamma UCL	394.9						
1031												
1032												
1033	Iron											
1034												
1035					General Statistics							
1036					Number of Valid Samples	17					Number of Unique Samples	17
1037												
1038					Raw Statistics		Log-transformed Statistics					
1039					Minimum	4155					Minimum of Log Data	8.332
1040					Maximum	49600					Maximum of Log Data	10.81
1041					Mean	13591					Mean of log Data	9.288
1042					Median	11700					SD of log Data	0.672
1043					SD	11005						
1044					Coefficient of Variation	0.81						
1045					Skewness	2.376						
1046												
1047					Relevant UCL Statistics							
1048					Normal Distribution Test		Lognormal Distribution Test					
1049					Shapiro Wilk Test Statistic	0.753					Shapiro Wilk Test Statistic	0.964
1050					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
1051					Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level					
1052												
1053					Assuming Normal Distribution		Assuming Lognormal Distribution					
1054					95% Student's-t UCL	18251					95% H-UCL	19726
1055					95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL	23353
1056					95% Adjusted-CLT UCL	19625					97.5% Chebyshev (MVUE) UCL	27685
1057					95% Modified-t UCL	18508					99% Chebyshev (MVUE) UCL	36194
1058												
1059					Gamma Distribution Test		Nonparametric Test					
1060					k star (bias corrected)	1.965	Data appear Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
1061					Theta Star	6918						
1062					nu star	66.8						
1063					Approximate Chi Square Value (.05)	48.99	**Nonparametric Statistics**					
1064					Adjusted Level of Significance	0.0346					95% CLT UCL	17982
1065					Adjusted Chi Square Value	47.4					95% Jackknife UCL	18251
1066											95% Standard Bootstrap UCL	17882
1067					Anderson-Darling Test Statistic	0.369					95% Bootstrap-t UCL	22194
1068					Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	37726
1069					Kolmogorov-Smirnov Test Statistic	0.123					95% Percentile Bootstrap UCL	18328
1070					Kolmogorov-Smirnov 5% Critical Value	0.211					95% BCA Bootstrap UCL	19380
1071	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	25225
1072											97.5% Chebyshev(Mean, Sd) UCL	30259
1073			**Assuming Gamma Distribution**								99% Chebyshev(Mean, Sd) UCL	40148
1074					95% Approximate Gamma UCL	18532						
1075					95% Adjusted Gamma UCL	19157						
1076												
1077			**Potential UCL to Use**								Use 95% Approximate Gamma UCL	18532
1078												
1079												
1080	**Lead**											
1081												
1082					**General Statistics**							
1083					Number of Valid Samples	17					Number of Unique Samples	17
1084												
1085			**Raw Statistics**				**Log-transformed Statistics**					
1086					Minimum	3					Minimum of Log Data	1.099
1087					Maximum	1760					Maximum of Log Data	7.473
1088					Mean	260.4					Mean of log Data	4.415
1089					Median	95					SD of log Data	1.588
1090					SD	488.2						
1091					Coefficient of Variation	1.875						
1092					Skewness	2.651						
1093												
1094					**Relevant UCL Statistics**							
1095			**Normal Distribution Test**				**Lognormal Distribution Test**					
1096					Shapiro Wilk Test Statistic	0.531					Shapiro Wilk Test Statistic	0.972
1097					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
1098			**Data not Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**					
1099												
1100			**Assuming Normal Distribution**				**Assuming Lognormal Distribution**					
1101					95% Student's-t UCL	467.2					95% H-UCL	1251
1102			**95% UCLs (Adjusted for Skewness)**								95% Chebyshev (MVUE) UCL	751.2
1103					95% Adjusted-CLT UCL	536.6					97.5% Chebyshev (MVUE) UCL	966.8
1104					95% Modified-t UCL	479.9					99% Chebyshev (MVUE) UCL	1390
1105												
1106			**Gamma Distribution Test**				**Nonparametric Test**					
1107					k star (bias corrected)	0.489	**Data appear Lognormal at 5% Significance Level**					
1108					Theta Star	532.7						
1109					nu star	16.62						
1110					Approximate Chi Square Value (.05)	8.404	**Nonparametric Statistics**					
1111					Adjusted Level of Significance	0.0346					95% CLT UCL	455.2
1112					Adjusted Chi Square Value	7.797					95% Jackknife UCL	467.2
1113											95% Standard Bootstrap UCL	454.6

	A	B	C	D	E	F	G	H	I	J	K	L
1114					Anderson-Darling Test Statistic	0.94					95% Bootstrap-t UCL	1414
1115					Anderson-Darling 5% Critical Value	0.794					95% Hall's Bootstrap UCL	1600
1116					Kolmogorov-Smirnov Test Statistic	0.228					95% Percentile Bootstrap UCL	473.4
1117					Kolmogorov-Smirnov 5% Critical Value	0.22					95% BCA Bootstrap UCL	521.7
1118					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	776.6
1119											97.5% Chebyshev(Mean, Sd) UCL	999.9
1120					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1439
1121					95% Approximate Gamma UCL	515.2						
1122					95% Adjusted Gamma UCL	555.3						
1123												
1124					**Potential UCL to Use**						Use 99% Chebyshev (MVUE) UCL	1390
1125												
1126												
1127	**Manganese**											
1128												
1129					**General Statistics**							
1130					Number of Valid Samples	17					Number of Unique Samples	16
1131												
1132					**Raw Statistics**						**Log-transformed Statistics**	
1133					Minimum	63.3					Minimum of Log Data	4.148
1134					Maximum	450					Maximum of Log Data	6.109
1135					Mean	187.4					Mean of log Data	5.05
1136					Median	150					SD of log Data	0.638
1137					SD	113.4						
1138					Coefficient of Variation	0.605						
1139					Skewness	0.744						
1140												
1141					**Relevant UCL Statistics**							
1142					**Normal Distribution Test**						**Lognormal Distribution Test**	
1143					Shapiro Wilk Test Statistic	0.901					Shapiro Wilk Test Statistic	0.921
1144					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
1145					**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
1146												
1147					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
1148					95% Student's-t UCL	235.4					95% H-UCL	271.4
1149					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	322.4
1150					95% Adjusted-CLT UCL	237.9					97.5% Chebyshev (MVUE) UCL	380.3
1151					95% Modified-t UCL	236.2					99% Chebyshev (MVUE) UCL	494.1
1152												
1153					**Gamma Distribution Test**						**Nonparametric Test**	
1154					k star (bias corrected)	2.414					**Data appear Normal at 5% Significance Level**	
1155					Theta Star	77.62						
1156					nu star	82.08						
1157					Approximate Chi Square Value (.05)	62.2					**Nonparametric Statistics**	
1158					Adjusted Level of Significance	0.0346					95% CLT UCL	232.6
1159					Adjusted Chi Square Value	60.39					95% Jackknife UCL	235.4
1160											95% Standard Bootstrap UCL	231.8
1161					Anderson-Darling Test Statistic	0.527					95% Bootstrap-t UCL	241.7
1162					Anderson-Darling 5% Critical Value	0.746					95% Hall's Bootstrap UCL	239.1
1163					Kolmogorov-Smirnov Test Statistic	0.164					95% Percentile Bootstrap UCL	233.4
1164					Kolmogorov-Smirnov 5% Critical Value	0.211					95% BCA Bootstrap UCL	234.8
1165					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	307.3
1166											97.5% Chebyshev(Mean, Sd) UCL	359.2

	A	B	C	D	E	F	G	H	I	J	K	L
1167				Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL		461.1
1168				95% Approximate Gamma UCL		247.3						
1169				95% Adjusted Gamma UCL		254.7						
1170												
1171				Potential UCL to Use						Use 95% Student's-t UCL		235.4
1172												
1173												
1174	Mercury											
1175												
1176				General Statistics								
1177				Number of Valid Samples		17				Number of Detected Data		15
1178				Number of Unique Samples		14				Number of Non-Detect Data		2
1179										Percent Non-Detects		11.76%
1180												
1181				Raw Statistics						Log-transformed Statistics		
1182				Minimum Detected		0.064				Minimum Detected		-2.749
1183				Maximum Detected		1.1				Maximum Detected		0.0953
1184				Mean of Detected		0.445				Mean of Detected		-1.096
1185				SD of Detected		0.294				SD of Detected		0.877
1186				Minimum Non-Detect		0.045				Minimum Non-Detect		-3.101
1187				Maximum Non-Detect		0.048				Maximum Non-Detect		-3.037
1188												
1189	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect		2
1190	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),									Number treated as Detected		15
1191	those Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		11.76%
1192												
1193				UCL Statistics								
1194				Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only		
1195				Shapiro Wilk Test Statistic		0.94				Shapiro Wilk Test Statistic		0.9
1196				5% Shapiro Wilk Critical Value		0.881				5% Shapiro Wilk Critical Value		0.881
1197				Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
1198												
1199				Assuming Normal Distribution						Assuming Lognormal Distribution		
1200				DL/2 Substitution Method						DL/2 Substitution Method		
1201				Mean		0.395				Mean		-1.409
1202				SD		0.309				SD		1.207
1203				95% DL/2 (t) UCL		0.526				95% H-Stat (DL/2) UCL		0.848
1204												
1205				Maximum Likelihood Estimate(MLE) Method						Robust ROS Method		
1206				Mean		0.378				Mean in Log Scale		-1.325
1207				SD		0.328				SD in Log Scale		1.045
1208				95% MLE (t) UCL		0.516				Mean in Original Scale		0.398
1209				95% MLE (Tiku) UCL		0.516				SD in Original Scale		0.305
1210										95% Percentile Bootstrap UCL		0.521
1211										95% BCA Bootstrap UCL		0.522
1212												
1213				Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only		
1214				k star (bias corrected)		1.568				Data appear Normal at 5% Significance Level		
1215				Theta Star		0.284						
1216				nu star		47.03						
1217												
1218				A-D Test Statistic		0.437				Nonparametric Statistics		
1219				5% A-D Critical Value		0.748				Kaplan-Meier (KM) Method		

	A	B	C	D	E	F	G	H	I	J	K	L
1220					K-S Test Statistic	0.748					Mean	0.4
1221					5% K-S Critical Value	0.225					SD	0.294
1222			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	0.0737
1223											95% KM (t) UCL	0.529
1224				**Assuming Gamma Distribution**							95% KM (z) UCL	0.521
1225				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	0.527
1226					Minimum	0.0568					95% KM (bootstrap t) UCL	0.543
1227					Maximum	1.1					95% KM (BCA) UCL	0.527
1228					Mean	0.401					95% KM (percentile) UCL	0.526
1229					Median	0.31					95% KM (Chebyshev) UCL	0.721
1230					SD	0.301					97.5% KM (Chebyshev) UCL	0.86
1231					k star	1.301					99% KM (Chebyshev) UCL	1.134
1232					Theta star	0.308						
1233					Nu star	44.22			**Potential UCLs to Use**			
1234					AppChi2	29.97					95% KM (t) UCL	0.529
1235					95% Gamma Approximate UCL	0.592					95% KM (Percentile Bootstrap) UCL	0.526
1236					95% Adjusted Gamma UCL	0.617						
1237												
1238												
1239	**Thallium**											
1240												
1241					**General Statistics**							
1242					Number of Valid Samples	17					Number of Detected Data	5
1243					Number of Unique Samples	5					Number of Non-Detect Data	12
1244											Percent Non-Detects	70.59%
1245												
1246				**Raw Statistics**						**Log-transformed Statistics**		
1247					Minimum Detected	0.0935					Minimum Detected	-2.37
1248					Maximum Detected	0.96					Maximum Detected	-0.0408
1249					Mean of Detected	0.381					Mean of Detected	-1.299
1250					SD of Detected	0.351					SD of Detected	0.915
1251					Minimum Non-Detect	0.36					Minimum Non-Detect	-1.022
1252					Maximum Non-Detect	0.57					Maximum Non-Detect	-0.562
1253												
1254	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
1255	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
1256	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	94.12%
1257												
1258					**UCL Statistics**							
1259				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1260					Shapiro Wilk Test Statistic	0.852					Shapiro Wilk Test Statistic	0.982
1261					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
1262				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1263												
1264				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1265					DL/2 Substitution Method						DL/2 Substitution Method	
1266					Mean	0.276					Mean	-1.419
1267					SD	0.191					SD	0.483
1268					95% DL/2 (t) UCL	0.357					95% H-Stat (DL/2) UCL	0.404
1269												
1270					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
1271											Mean in Log Scale	-1.677
1272											SD in Log Scale	0.56

	A	B	C	D	E	F	G	H	I	J	K	L
1273											Mean in Original Scale	0.228
1274											SD in Original Scale	0.205
1275											95% Percentile Bootstrap UCL	0.315
1276											95% BCA Bootstrap UCL	0.378
1277												
1278				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
1279					k star (bias corrected)	0.793			**Data appear Normal at 5% Significance Level**			
1280					Theta Star	0.48						
1281					nu star	7.931						
1282												
1283					A-D Test Statistic	0.242			**Nonparametric Statistics**			
1284					5% A-D Critical Value	0.686					Kaplan-Meier (KM) Method	
1285					K-S Test Statistic	0.686					Mean	0.238
1286					5% K-S Critical Value	0.361					SD	0.207
1287				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	0.0668
1288											95% KM (t) UCL	0.355
1289				**Assuming Gamma Distribution**							95% KM (z) UCL	0.348
1290					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.36
1291					Minimum	N/A					95% KM (bootstrap t) UCL	0.398
1292					Maximum	N/A					95% KM (BCA) UCL	0.431
1293					Mean	N/A					95% KM (percentile) UCL	0.392
1294					Median	N/A					95% KM (Chebyshev) UCL	0.529
1295					SD	N/A					97.5% KM (Chebyshev) UCL	0.655
1296					k star	N/A					99% KM (Chebyshev) UCL	0.903
1297					Theta star	N/A						
1298					Nu star	N/A			**Potential UCLs to Use**			
1299					AppChi2	N/A					95% KM (t) UCL	0.355
1300					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	0.392
1301					95% Adjusted Gamma UCL	N/A						
1302												
1303												
1304	**Vanadium**											
1305												
1306					**General Statistics**							
1307					Number of Valid Samples	17					Number of Detected Data	12
1308					Number of Unique Samples	12					Number of Non-Detect Data	5
1309											Percent Non-Detects	29.41%
1310												
1311				**Raw Statistics**					**Log-transformed Statistics**			
1312					Minimum Detected	5.75					Minimum Detected	1.749
1313					Maximum Detected	34.3					Maximum Detected	3.535
1314					Mean of Detected	18.28					Mean of Detected	2.759
1315					SD of Detected	9.39					SD of Detected	0.599
1316					Minimum Non-Detect	8.9					Minimum Non-Detect	2.186
1317					Maximum Non-Detect	13					Maximum Non-Detect	2.565
1318												
1319	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	9
1320	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	8
1321	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	52.94%
1322												
1323					**UCL Statistics**							
1324				**Normal Distribution Test with Detected Values Only**					**Lognormal Distribution Test with Detected Values Only**			
1325					Shapiro Wilk Test Statistic	0.949					Shapiro Wilk Test Statistic	0.925

	A	B	C	D	E	F	G	H	I	J	K	L
1326					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
1327				**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1328												
1329				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1330					DL/2 Substitution Method						DL/2 Substitution Method	
1331					Mean	14.54					Mean	2.452
1332					SD	9.811					SD	0.702
1333					95% DL/2 (t) UCL	18.7					95% H-Stat (DL/2) UCL	18.56
1334												
1335					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1336					Mean	12.58					Mean in Log Scale	2.543
1337					SD	12.36					SD in Log Scale	0.611
1338					95% MLE (t) UCL	17.81					Mean in Original Scale	15.16
1339					95% MLE (Tiku) UCL	19.23					SD in Original Scale	9.267
1340											95% Percentile Bootstrap UCL	18.87
1341											95% BCA Bootstrap UCL	19.22
1342												
1343				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
1344					k star (bias corrected)	2.738				**Data appear Normal at 5% Significance Level**		
1345					Theta Star	6.674						
1346					nu star	65.72						
1347												
1348					A-D Test Statistic	0.3				**Nonparametric Statistics**		
1349					5% A-D Critical Value	0.737					Kaplan-Meier (KM) Method	
1350					K-S Test Statistic	0.737					Mean	15.04
1351					5% K-S Critical Value	0.247					SD	9.134
1352				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	2.342
1353											95% KM (t) UCL	19.13
1354				**Assuming Gamma Distribution**							95% KM (z) UCL	18.89
1355					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	19.1
1356					Minimum	0.999					95% KM (bootstrap t) UCL	19.9
1357					Maximum	34.3					95% KM (BCA) UCL	19.16
1358					Mean	15.68					95% KM (percentile) UCL	19.21
1359					Median	14					95% KM (Chebyshev) UCL	25.25
1360					SD	9.285					97.5% KM (Chebyshev) UCL	29.67
1361					k star	1.848					99% KM (Chebyshev) UCL	38.35
1362					Theta star	8.488						
1363					Nu star	62.82				**Potential UCLs to Use**		
1364					AppChi2	45.59					95% KM (t) UCL	19.13
1365					95% Gamma Approximate UCL	21.61					95% KM (Percentile Bootstrap) UCL	19.21
1366					95% Adjusted Gamma UCL	22.36						
1367												

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Data Sets with Non-Detects**								
2		**User Selected Options**										
3			From File	H:\JCV\Puritan\2007\EPCs\Data\unisl_surf_soil_data.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Acetophenone**											
10												
11						**General Statistics**						
12						Number of Valid Samples	25			Number of Detected Data		2
13						Number of Unique Samples	2			Number of Non-Detect Data		23
14										Percent Non-Detects		92.00%
15												
16				**Raw Statistics**						**Log-transformed Statistics**		
17						Minimum Detected	53			Minimum Detected		3.97
18						Maximum Detected	860			Maximum Detected		6.757
19						Mean of Detected	456.5			Mean of Detected		5.364
20						SD of Detected	570.6			SD of Detected		1.97
21						Minimum Non-Detect	340			Minimum Non-Detect		5.829
22						Maximum Non-Detect	510			Maximum Non-Detect		6.234
23												
24				Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect		24
25				For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected		1
26				those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage		96.00%
27												
28						**UCL Statistics**						
29				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
30						Shapiro Wilk Test Statistic	1			Shapiro Wilk Test Statistic		1
31						5% Shapiro Wilk Critical Value	N/A			5% Shapiro Wilk Critical Value		N/A
32				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
33												
34				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
35						DL/2 Substitution Method				DL/2 Substitution Method		
36						Mean	212.9			Mean		5.261
37						SD	138.8			SD		0.413
38						95% DL/2 (t) UCL	260.4			95% H-Stat (DL/2) UCL		276.7
39												
40						Maximum Likelihood Estimate(MLE) Method	N/A			Robust ROS Method		
41										Mean in Log Scale		4.073
42										SD in Log Scale		0.848
43										Mean in Original Scale		95.87
44										SD in Original Scale		164.6
45										95% Percentile Bootstrap UCL		156.5
46										95% BCA Bootstrap UCL		194.7
47												
48				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
49						k star (bias corrected)	N/A			**Data do not follow a Discernable Distribution (0.05)**		
50						Theta Star	N/A					
51						nu star	N/A					
52												
53						A-D Test Statistic	0.356			**Nonparametric Statistics**		

	A	B	C	D	E	F	G	H	I	J	K	L
54					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
55					K-S Test Statistic	N/A					Mean	85.28
56					5% K-S Critical Value	N/A					SD	158.1
57				**Data not Gamma Distributed at 5% Significance Level**							SE of Mean	44.73
58											95% KM (t) UCL	161.8
59				**Assuming Gamma Distribution**							95% KM (z) UCL	158.9
60				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	616.6
61					Minimum	N/A					95% KM (bootstrap t) UCL	1.8E+308
62					Maximum	N/A					95% KM (BCA) UCL	1E+31
63					Mean	N/A					95% KM (percentile) UCL	1E+31
64					Median	N/A					95% KM (Chebyshev) UCL	280.2
65					SD	N/A					97.5% KM (Chebyshev) UCL	364.6
66					k star	N/A					99% KM (Chebyshev) UCL	530.3
67					Theta star	N/A						
68					Nu star	N/A				**Potential UCLs to Use**		
69					AppChi2	N/A					97.5% KM (Chebyshev) UCL	364.6
70					95% Gamma Approximate UCL	N/A						
71					95% Adjusted Gamma UCL	N/A						
72												
73												
74	**bis(2-Ethylhexyl)phthalate**											
75												
76					**General Statistics**							
77					Number of Valid Samples	25					Number of Detected Data	12
78					Number of Unique Samples	12					Number of Non-Detect Data	13
79											Percent Non-Detects	52.00%
80												
81				**Raw Statistics**						**Log-transformed Statistics**		
82					Minimum Detected	130					Minimum Detected	4.868
83					Maximum Detected	260000					Maximum Detected	12.47
84					Mean of Detected	49048					Mean of Detected	8.737
85					SD of Detected	92308					SD of Detected	2.504
86					Minimum Non-Detect	340					Minimum Non-Detect	5.829
87					Maximum Non-Detect	640					Maximum Non-Detect	6.461
88												
89	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	16
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	9
91	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	64.00%
92												
93					**UCL Statistics**							
94				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
95					Shapiro Wilk Test Statistic	0.569					Shapiro Wilk Test Statistic	0.95
96					5% Shapiro Wilk Critical Value	0.859					5% Shapiro Wilk Critical Value	0.859
97				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
98												
99				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
100					DL/2 Substitution Method						DL/2 Substitution Method	
101					Mean	23652					Mean	6.962
102					SD	67272					SD	2.434
103					95% DL/2 (t) UCL	46671					95% H-Stat (DL/2) UCL	140425
104												
105					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
106					Mean	-59577					Mean in Log Scale	6.645

	A	B	C	D	E	F	G	H	I	J	K	L
107					SD	132029					SD in Log Scale	2.72
108					95% MLE (t) UCL	-144					Mean in Original Scale	23618
109					95% MLE (Tiku) UCL	10667					SD in Original Scale	67284
110											95% Percentile Bootstrap UCL	45643
111											95% BCA Bootstrap UCL	54060
112												
113			**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**			
114					k star (bias corrected)	0.302			**Data appear Gamma Distributed at 5% Significance Level**			
115					Theta Star	162163						
116					nu star	7.259						
117												
118					A-D Test Statistic	0.539			**Nonparametric Statistics**			
119					5% A-D Critical Value	0.818					Kaplan-Meier (KM) Method	
120					K-S Test Statistic	0.818					Mean	23632
121					5% K-S Critical Value	0.264					SD	65920
122			**Data appear Gamma Distributed at 5% Significance Level**								SE of Mean	13770
123											95% KM (t) UCL	47192
124			**Assuming Gamma Distribution**								95% KM (z) UCL	46282
125				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	46654
126					Minimum	0					95% KM (bootstrap t) UCL	184705
127					Maximum	260000					95% KM (BCA) UCL	45454
128					Mean	23504					95% KM (percentile) UCL	46194
129					Median	0					95% KM (Chebyshev) UCL	83655
130					SD	67326					97.5% KM (Chebyshev) UCL	109627
131					k star	0.0659					99% KM (Chebyshev) UCL	160644
132					Theta star	356410						
133					Nu star	3.297			**Potential UCLs to Use**			
134					AppChi2	0.466					95% KM (t) UCL	47192
135					95% Gamma Approximate UCL	166420						
136					95% Adjusted Gamma UCL	191697						
137												
138												
139	**Benzo(a)pyrene**											
140												
141					**General Statistics**							
142					Number of Valid Samples	25					Number of Unique Samples	24
143												
144			**Raw Statistics**						**Log-transformed Statistics**			
145					Minimum	85					Minimum of Log Data	4.443
146					Maximum	4000					Maximum of Log Data	8.294
147					Mean	926.8					Mean of log Data	6.4
148					Median	610					SD of log Data	0.975
149					SD	928.9						
150					Coefficient of Variation	1.002						
151					Skewness	1.947						
152												
153					**Relevant UCL Statistics**							
154			**Normal Distribution Test**						**Lognormal Distribution Test**			
155					Shapiro Wilk Test Statistic	0.788					Shapiro Wilk Test Statistic	0.988
156					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
157			**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**			
158												
159			**Assuming Normal Distribution**						**Assuming Lognormal Distribution**			

	A	B	C	D	E	F	G	H	I	J	K	L
160					95% Student's-t UCL	1245					95% H-UCL	1584
161				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	1848
162					95% Adjusted-CLT UCL	1310					97.5% Chebyshev (MVUE) UCL	2240
163					95% Modified-t UCL	1257					99% Chebyshev (MVUE) UCL	3010
164												
165				**Gamma Distribution Test**						**Nonparametric Test**		
166					k star (bias corrected)	1.171				**Data appear Gamma Distributed at 5% Significance Level**		
167					Theta Star	791.3						
168					nu star	58.56						
169					Approximate Chi Square Value (.05)	41.97				**Nonparametric Statistics**		
170					Adjusted Level of Significance	0.0395					95% CLT UCL	1232
171					Adjusted Chi Square Value	41.01					95% Jackknife UCL	1245
172											95% Standard Bootstrap UCL	1219
173					Anderson-Darling Test Statistic	0.302					95% Bootstrap-t UCL	1427
174					Anderson-Darling 5% Critical Value	0.766					95% Hall's Bootstrap UCL	1415
175					Kolmogorov-Smirnov Test Statistic	0.12					95% Percentile Bootstrap UCL	1245
176					Kolmogorov-Smirnov 5% Critical Value	0.178					95% BCA Bootstrap UCL	1290
177				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	1737
178											97.5% Chebyshev(Mean, Sd) UCL	2087
179				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	2775
180					95% Approximate Gamma UCL	1293						
181					95% Adjusted Gamma UCL	1323						
182												
183				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	1293
184												
185												
186	**Benzo(b)fluoranthene**											
187												
188					**General Statistics**							
189					Number of Valid Samples	25					Number of Unique Samples	21
190												
191				**Raw Statistics**						**Log-transformed Statistics**		
192					Minimum	0					Log Statistics Not Avaliable	
193					Maximum	6400						
194					Mean	1232						
195					Median	580						
196					SD	1476						
197					Coefficient of Variation	1.198						
198					Skewness	2.022						
199												
200					**Relevant UCL Statistics**							
201				**Normal Distribution Test**						**Lognormal Distribution Test**		
202					Shapiro Wilk Test Statistic	0.78					Not Available	
203					Shapiro Wilk Critical Value	0.918						
204				**Data not Normal at 5% Significance Level**								
205												
206				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
207					95% Student's-t UCL	1737					95% H-UCL	N/A
208				**Assuming Normal Distribution**						**95% UCLs (Adjusted for Skewness)**		
209					95% Student's-t UCL	1737					95% Adjusted-CLT UCL	1845
210											95% Modified-t UCL	1757
211												
212				**Gamma Distribution Test**						**Nonparametric Test**		

	A	B	C	D	E	F	G	H	I	J	K	L
213	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
214												
215	Potential UCL to Use											
216					Use 95% Chebyshev (Mean, Sd) UCL	2519					95% CLT UCL	1718
217											95% Jackknife UCL	1737
218											95% Standard Bootstrap UCL	1702
219											95% Bootstrap-t UCL	1930
220											95% Hall's Bootstrap UCL	2112
221											95% Percentile Bootstrap UCL	1740
222											95% BCA Bootstrap UCL	1883
223											95% Chebyshev(Mean, Sd) UCL	2519
224											97.5% Chebyshev(Mean, Sd) UCL	3075
225											99% Chebyshev(Mean, Sd) UCL	4169
226												
227												
228	Benzo[a]anthracene											
229												
230	General Statistics											
231					Number of Valid Samples	25					Number of Unique Samples	21
232												
233	Raw Statistics						Log-transformed Statistics					
234					Minimum	80					Minimum of Log Data	4.382
235					Maximum	4500					Maximum of Log Data	8.412
236					Mean	973.6					Mean of log Data	6.393
237					Median	560					SD of log Data	1.043
238					SD	1013						
239					Coefficient of Variation	1.041						
240					Skewness	1.99						
241												
242	Relevant UCL Statistics											
243	Normal Distribution Test						Lognormal Distribution Test					
244					Shapiro Wilk Test Statistic	0.779					Shapiro Wilk Test Statistic	0.969
245					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
246	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
247												
248	Assuming Normal Distribution						Assuming Lognormal Distribution					
249					95% Student's-t UCL	1320					95% H-UCL	1779
250	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	2038
251					95% Adjusted-CLT UCL	1393					97.5% Chebyshev (MVUE) UCL	2488
252					95% Modified-t UCL	1334					99% Chebyshev (MVUE) UCL	3373
253												
254	Gamma Distribution Test						Nonparametric Test					
255					k star (bias corrected)	1.051	Data appear Gamma Distributed at 5% Significance Level					
256					Theta Star	926.4						
257					nu star	52.55						
258					Approximate Chi Square Value (.05)	36.9	Nonparametric Statistics					
259					Adjusted Level of Significance	0.0395					95% CLT UCL	1307
260					Adjusted Chi Square Value	36					95% Jackknife UCL	1320
261											95% Standard Bootstrap UCL	1295
262					Anderson-Darling Test Statistic	0.535					95% Bootstrap-t UCL	1478
263					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	1594
264					Kolmogorov-Smirnov Test Statistic	0.164					95% Percentile Bootstrap UCL	1336
265					Kolmogorov-Smirnov 5% Critical Value	0.179					95% BCA Bootstrap UCL	1398

	A	B	C	D	E	F	G	H	I	J	K	L
266	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	1857
267											97.5% Chebyshev(Mean, Sd) UCL	2239
268	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	2990
269					95% Approximate Gamma UCL	1387						
270					95% Adjusted Gamma UCL	1421						
271												
272	Potential UCL to Use										Use 95% Approximate Gamma UCL	1387
273												
274												
275	Dibenz[a,h]anthracene											
276												
277	General Statistics											
278					Number of Valid Samples	25					Number of Detected Data	20
279					Number of Unique Samples	19					Number of Non-Detect Data	5
280											Percent Non-Detects	20.00%
281												
282	Raw Statistics						Log-transformed Statistics					
283					Minimum Detected	41					Minimum Detected	3.714
284					Maximum Detected	750					Maximum Detected	6.62
285					Mean of Detected	198.9					Mean of Detected	4.932
286					SD of Detected	192.3					SD of Detected	0.843
287					Minimum Non-Detect	350					Minimum Non-Detect	5.858
288					Maximum Non-Detect	3400					Maximum Non-Detect	8.132
289												
290	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	25
291	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	0
292	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	100.00%
293												
294	UCL Statistics											
295	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
296					Shapiro Wilk Test Statistic	0.76					Shapiro Wilk Test Statistic	0.949
297					5% Shapiro Wilk Critical Value	0.905					5% Shapiro Wilk Critical Value	0.905
298	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
299												
300	Assuming Normal Distribution						Assuming Lognormal Distribution					
301					DL/2 Substitution Method						DL/2 Substitution Method	
302					Mean	255.7					Mean	5.073
303					SD	346.2					SD	0.902
304					95% DL/2 (t) UCL	374.2					95% H-Stat (DL/2) UCL	480.3
305												
306					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
307											Mean in Log Scale	4.89
308											SD in Log Scale	0.762
309											Mean in Original Scale	182
310											SD in Original Scale	174.8
311											95% Percentile Bootstrap UCL	239.4
312											95% BCA Bootstrap UCL	253.4
313												
314	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
315					k star (bias corrected)	1.337	Data Follow Appr. Gamma Distribution at 5% Significance Level					
316					Theta Star	148.8						
317					nu star	53.47						
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319					A-D Test Statistic	0.78	Nonparametric Statistics					
320					5% A-D Critical Value	0.757					Kaplan-Meier (KM) Method	
321					K-S Test Statistic	0.757					Mean	184.6
322					5% K-S Critical Value	0.197					SD	175.5
323	Data follow approximate Gamma Distribution at 5% Significance Level										SE of Mean	37.15
324											95% KM (t) UCL	248.1
325			Assuming Gamma Distribution								95% KM (z) UCL	245.7
326				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	248
327					Minimum	N/A					95% KM (bootstrap t) UCL	277
328					Maximum	N/A					95% KM (BCA) UCL	246.5
329					Mean	N/A					95% KM (percentile) UCL	247.1
330					Median	N/A					95% KM (Chebyshev) UCL	346.5
331					SD	N/A					97.5% KM (Chebyshev) UCL	416.6
332					k star	N/A					99% KM (Chebyshev) UCL	554.2
333					Theta star	N/A						
334					Nu star	N/A	Potential UCLs to Use					
335					AppChi2	N/A					95% KM (BCA) UCL	246.5
336					95% Gamma Approximate UCL	N/A						
337					95% Adjusted Gamma UCL	N/A						
338												
339												
340	Indeno(1,2,3-cd)pyrene											
341												
342					General Statistics							
343					Number of Valid Samples	25					Number of Unique Samples	23
344												
345				Raw Statistics						Log-transformed Statistics		
346					Minimum	52					Minimum of Log Data	3.951
347					Maximum	2400					Maximum of Log Data	7.783
348					Mean	548.9					Mean of log Data	5.831
349					Median	330					SD of log Data	1.036
350					SD	566.9						
351					Coefficient of Variation	1.033						
352					Skewness	1.862						
353												
354					Relevant UCL Statistics							
355				Normal Distribution Test						Lognormal Distribution Test		
356					Shapiro Wilk Test Statistic	0.787					Shapiro Wilk Test Statistic	0.978
357					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
358				Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level		
359												
360				Assuming Normal Distribution						Assuming Lognormal Distribution		
361					95% Student's-t UCL	742.9					95% H-UCL	999.5
362				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	1148
363					95% Adjusted-CLT UCL	780.5					97.5% Chebyshev (MVUE) UCL	1400
364					95% Modified-t UCL	749.9					99% Chebyshev (MVUE) UCL	1896
365												
366				Gamma Distribution Test						Nonparametric Test		
367					k star (bias corrected)	1.071				Data appear Gamma Distributed at 5% Significance Level		
368					Theta Star	512.5						
369					nu star	53.55						
370					Approximate Chi Square Value (.05)	37.74				Nonparametric Statistics		
371					Adjusted Level of Significance	0.0395					95% CLT UCL	735.4

	A	B	C	D	E	F	G	H	I	J	K	L
372					Adjusted Chi Square Value	36.84					95% Jackknife UCL	742.9
373											95% Standard Bootstrap UCL	729.1
374					Anderson-Darling Test Statistic	0.322					95% Bootstrap-t UCL	832.3
375					Anderson-Darling 5% Critical Value	0.769					95% Hall's Bootstrap UCL	836.9
376					Kolmogorov-Smirnov Test Statistic	0.0959					95% Percentile Bootstrap UCL	752.9
377					Kolmogorov-Smirnov 5% Critical Value	0.179					95% BCA Bootstrap UCL	774.2
378					**Data appear Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	1043
379											97.5% Chebyshev(Mean, Sd) UCL	1257
380					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	1677
381					95% Approximate Gamma UCL	778.8						
382					95% Adjusted Gamma UCL	798						
383												
384					**Potential UCL to Use**						Use 95% Approximate Gamma UCL	778.8
385												
386												
387	**Phenanthrene**											
388												
389					**General Statistics**							
390					Number of Valid Samples	25					Number of Unique Samples	21
391												
392					**Raw Statistics**						**Log-transformed Statistics**	
393					Minimum	61					Minimum of Log Data	4.111
394					Maximum	13000					Maximum of Log Data	9.473
395					Mean	1462					Mean of log Data	6.385
396					Median	530					SD of log Data	1.342
397					SD	2634						
398					Coefficient of Variation	1.802						
399					Skewness	3.812						
400												
401					**Relevant UCL Statistics**							
402					**Normal Distribution Test**						**Lognormal Distribution Test**	
403					Shapiro Wilk Test Statistic	0.522					Shapiro Wilk Test Statistic	0.97
404					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
405					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
406												
407					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
408					95% Student's-t UCL	2364					95% H-UCL	3297
409					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	3300
410					95% Adjusted-CLT UCL	2758					97.5% Chebyshev (MVUE) UCL	4135
411					95% Modified-t UCL	2430					99% Chebyshev (MVUE) UCL	5776
412												
413					**Gamma Distribution Test**						**Nonparametric Test**	
414					k star (bias corrected)	0.619					**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
415					Theta Star	2362						
416					nu star	30.95						
417					Approximate Chi Square Value (.05)	19.24					**Nonparametric Statistics**	
418					Adjusted Level of Significance	0.0395					95% CLT UCL	2329
419					Adjusted Chi Square Value	18.61					95% Jackknife UCL	2364
420											95% Standard Bootstrap UCL	2328
421					Anderson-Darling Test Statistic	0.912					95% Bootstrap-t UCL	3736
422					Anderson-Darling 5% Critical Value	0.791					95% Hall's Bootstrap UCL	5770
423					Kolmogorov-Smirnov Test Statistic	0.167					95% Percentile Bootstrap UCL	2411
424					Kolmogorov-Smirnov 5% Critical Value	0.182					95% BCA Bootstrap UCL	2937

	A	B	C	D	E	F	G	H	I	J	K	L
425	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	3759
426											97.5% Chebyshev(Mean, Sd) UCL	4752
427				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	6704
428					95% Approximate Gamma UCL	2352						
429					95% Adjusted Gamma UCL	2431						
430												
431				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	2352
432												
433												
434	**Aroclor-1254**											
435												
436						**General Statistics**						
437					Number of Valid Samples	25					Number of Detected Data	4
438					Number of Unique Samples	4					Number of Non-Detect Data	21
439											Percent Non-Detects	84.00%
440												
441				**Raw Statistics**							**Log-transformed Statistics**	
442					Minimum Detected	77					Minimum Detected	4.344
443					Maximum Detected	1200					Maximum Detected	7.09
444					Mean of Detected	614.3					Mean of Detected	5.884
445					SD of Detected	568.4					SD of Detected	1.336
446					Minimum Non-Detect	34					Minimum Non-Detect	3.526
447					Maximum Non-Detect	52					Maximum Non-Detect	3.951
448												
449	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	21
450	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	4
451	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	84.00%
452												
453						**UCL Statistics**						
454				**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**	
455					Shapiro Wilk Test Statistic	0.853					Shapiro Wilk Test Statistic	0.884
456					5% Shapiro Wilk Critical Value	0.748					5% Shapiro Wilk Critical Value	0.748
457				**Data appear Normal at 5% Significance Level**							**Data appear Lognormal at 5% Significance Level**	
458												
459				**Assuming Normal Distribution**							**Assuming Lognormal Distribution**	
460					DL/2 Substitution Method						DL/2 Substitution Method	
461					Mean	114.7					Mean	3.435
462					SD	299.8					SD	1.193
463					95% DL/2 (t) UCL	217.3					95% H-Stat (DL/2) UCL	79.03
464												
465					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
466					Mean	-1022					Mean in Log Scale	0.287
467					SD	1078					SD in Log Scale	2.887
468					95% MLE (t) UCL	-652.9					Mean in Original Scale	99.3
469					95% MLE (Tiku) UCL	43.81					SD in Original Scale	305
470											95% Percentile Bootstrap UCL	203.9
471											95% BCA Bootstrap UCL	251.8
472												
473				**Gamma Distribution Test with Detected Values Only**							**Nonparametic Test with Detected Values Only**	
474					k star (bias corrected)	0.434					**Data appear Normal at 5% Significance Level**	
475					Theta Star	1417						
476					nu star	3.468						
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478					A-D Test Statistic	0.425	Nonparametric Statistics					
479					5% A-D Critical Value	0.666					Kaplan-Meier (KM) Method	
480					K-S Test Statistic	0.666					Mean	163
481					5% K-S Critical Value	0.402					SD	278.5
482	Data appear Gamma Distributed at 5% Significance Level										SE of Mean	64.31
483											95% KM (t) UCL	273
484	Assuming Gamma Distribution										95% KM (z) UCL	268.7
485				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	258.6
486					Minimum	0					95% KM (bootstrap t) UCL	234.3
487					Maximum	1200					95% KM (BCA) UCL	1200
488					Mean	98.99					95% KM (percentile) UCL	1016
489					Median	0					95% KM (Chebyshev) UCL	443.3
490					SD	305.1					97.5% KM (Chebyshev) UCL	564.6
491					k star	0.0654					99% KM (Chebyshev) UCL	802.9
492					Theta star	1514						
493					Nu star	3.269	Potential UCLs to Use					
494					AppChi2	0.456					95% KM (t) UCL	273
495					95% Gamma Approximate UCL	709.1					95% KM (Percentile Bootstrap) UCL	1016
496					95% Adjusted Gamma UCL	N/A						
497												
498												
499	Aroclor-1260											
500												
501					General Statistics							
502					Number of Valid Samples	25					Number of Detected Data	19
503					Number of Unique Samples	18					Number of Non-Detect Data	6
504											Percent Non-Detects	24.00%
505												
506				Raw Statistics							Log-transformed Statistics	
507					Minimum Detected	45					Minimum Detected	3.807
508					Maximum Detected	720					Maximum Detected	6.579
509					Mean of Detected	203.9					Mean of Detected	5.005
510					SD of Detected	190.6					SD of Detected	0.788
511					Minimum Non-Detect	35					Minimum Non-Detect	3.555
512					Maximum Non-Detect	38					Maximum Non-Detect	3.638
513												
514	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
515	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	19
516	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	24.00%
517												
518					UCL Statistics							
519	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
520					Shapiro Wilk Test Statistic	0.723					Shapiro Wilk Test Statistic	0.954
521					5% Shapiro Wilk Critical Value	0.901					5% Shapiro Wilk Critical Value	0.901
522	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
523												
524	Assuming Normal Distribution						Assuming Lognormal Distribution					
525					DL/2 Substitution Method						DL/2 Substitution Method	
526					Mean	159.4					Mean	4.503
527					SD	183.8					SD	1.139
528					95% DL/2 (t) UCL	222.3					95% H-Stat (DL/2) UCL	218.6
529												
530					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	

	A	B	C	D	E	F	G	H	I	J	K	L
531					Mean	129.8					Mean in Log Scale	4.564
532					SD	216.1					SD in Log Scale	1.06
533					95% MLE (t) UCL	203.7					Mean in Original Scale	160.9
534					95% MLE (Tiku) UCL	204.8					SD in Original Scale	182.6
535											95% Percentile Bootstrap UCL	224.9
536											95% BCA Bootstrap UCL	237.4
537												
538				**Gamma Distribution Test with Detected Values Only**					**Nonparametic Test with Detected Values Only**			
539					k star (bias corrected)	1.505			**Data appear Gamma Distributed at 5% Significance Level**			
540					Theta Star	135.5						
541					nu star	57.19						
542												
543					A-D Test Statistic	0.593			**Nonparametric Statistics**			
544					5% A-D Critical Value	0.754					Kaplan-Meier (KM) Method	
545					K-S Test Statistic	0.754					Mean	165.8
546					5% K-S Critical Value	0.201					SD	175.4
547				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	36.03
548											95% KM (t) UCL	227.4
549				**Assuming Gamma Distribution**							95% KM (z) UCL	225.1
550					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	226.5
551					Minimum	0					95% KM (bootstrap t) UCL	273.3
552					Maximum	720					95% KM (BCA) UCL	237.4
553					Mean	155					95% KM (percentile) UCL	229.2
554					Median	120					95% KM (Chebyshev) UCL	322.9
555					SD	187.4					97.5% KM (Chebyshev) UCL	390.8
556					k star	0.138					99% KM (Chebyshev) UCL	524.3
557					Theta star	1122						
558					Nu star	6.908			**Potential UCLs to Use**			
559					AppChi2	2.12					95% KM (BCA) UCL	237.4
560					95% Gamma Approximate UCL	505						
561					95% Adjusted Gamma UCL	550.8						
562												
563												
564	**Dieldrin**											
565												
566					**General Statistics**							
567					Number of Valid Samples	25					Number of Detected Data	22
568					Number of Unique Samples	21					Number of Non-Detect Data	3
569											Percent Non-Detects	12.00%
570												
571				**Raw Statistics**					**Log-transformed Statistics**			
572					Minimum Detected	3.1					Minimum Detected	1.131
573					Maximum Detected	810					Maximum Detected	6.697
574					Mean of Detected	96.64					Mean of Detected	3.698
575					SD of Detected	175.5					SD of Detected	1.305
576					Minimum Non-Detect	3.5					Minimum Non-Detect	1.253
577					Maximum Non-Detect	3.8					Maximum Non-Detect	1.335
578												
579	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	4
580	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	21
581	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	16.00%
582												
583					**UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
584	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
585					Shapiro Wilk Test Statistic	0.517					Shapiro Wilk Test Statistic	0.974
586					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911
587	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
588												
589	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
590					DL/2 Substitution Method						DL/2 Substitution Method	
591					Mean	85.27					Mean	3.328
592					SD	167.1					SD	1.593
593					95% DL/2 (t) UCL	142.5					95% H-Stat (DL/2) UCL	197.3
594												
595					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
596					Mean	65.28					Mean in Log Scale	3.385
597					SD	184					SD in Log Scale	1.498
598					95% MLE (t) UCL	128.2					Mean in Original Scale	85.41
599					95% MLE (Tiku) UCL	125.6					SD in Original Scale	167
600											95% Percentile Bootstrap UCL	147.1
601											95% BCA Bootstrap UCL	175
602												
603	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
604					k star (bias corrected)	0.629	**Data appear Lognormal at 5% Significance Level**					
605					Theta Star	153.7						
606					nu star	27.66						
607												
608					A-D Test Statistic	1.117	**Nonparametric Statistics**					
609					5% A-D Critical Value	0.788					Kaplan-Meier (KM) Method	
610					K-S Test Statistic	0.788					Mean	85.42
611					5% K-S Critical Value	0.193					SD	163.7
612	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	33.5
613											95% KM (t) UCL	142.7
614	**Assuming Gamma Distribution**										95% KM (z) UCL	140.5
615					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	142.4
616					Minimum	0					95% KM (bootstrap t) UCL	227.5
617					Maximum	810					95% KM (BCA) UCL	157.7
618					Mean	84.92					95% KM (percentile) UCL	147
619					Median	31					95% KM (Chebyshev) UCL	231.5
620					SD	167.3					97.5% KM (Chebyshev) UCL	294.7
621					k star	0.173					99% KM (Chebyshev) UCL	418.8
622					Theta star	490.6						
623					Nu star	8.655	**Potential UCLs to Use**					
624					AppChi2	3.12					97.5% KM (Chebyshev) UCL	294.7
625					95% Gamma Approximate UCL	235.6						
626					95% Adjusted Gamma UCL	253.7						
627												
628												
629	**Aluminum**											
630												
631					**General Statistics**							
632					Number of Valid Samples	25					Number of Unique Samples	25
633												
634	**Raw Statistics**						**Log-transformed Statistics**					
635					Minimum	3370					Minimum of Log Data	8.123
636					Maximum	10100					Maximum of Log Data	9.22

	A	B	C	D	E	F	G	H	I	J	K	L
637					Mean	5496					Mean of log Data	8.582
638					Median	5110					SD of log Data	0.242
639					SD	1463						
640					Coefficient of Variation	0.266						
641					Skewness	1.485						
642												
643					**Relevant UCL Statistics**							
644				**Normal Distribution Test**						**Lognormal Distribution Test**		
645					Shapiro Wilk Test Statistic	0.884					Shapiro Wilk Test Statistic	0.958
646					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
647				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
648												
649				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
650					95% Student's-t UCL	5997					95% H-UCL	6000
651				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	6658
652					95% Adjusted-CLT UCL	6070					97.5% Chebyshev (MVUE) UCL	7164
653					95% Modified-t UCL	6011					99% Chebyshev (MVUE) UCL	8159
654												
655				**Gamma Distribution Test**						**Nonparametric Test**		
656					k star (bias corrected)	14.97				**Data appear Gamma Distributed at 5% Significance Level**		
657					Theta Star	367.1						
658					nu star	748.6						
659					Approximate Chi Square Value (.05)	686.1				**Nonparametric Statistics**		
660					Adjusted Level of Significance	0.0395					95% CLT UCL	5978
661					Adjusted Chi Square Value	682					95% Jackknife UCL	5997
662											95% Standard Bootstrap UCL	5964
663					Anderson-Darling Test Statistic	0.592					95% Bootstrap-t UCL	6129
664					Anderson-Darling 5% Critical Value	0.744					95% Hall's Bootstrap UCL	6201
665					Kolmogorov-Smirnov Test Statistic	0.158					95% Percentile Bootstrap UCL	6009
666					Kolmogorov-Smirnov 5% Critical Value	0.174					95% BCA Bootstrap UCL	6090
667				**Data appear Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	6772
668											97.5% Chebyshev(Mean, Sd) UCL	7324
669				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	8408
670					95% Approximate Gamma UCL	5997						
671					95% Adjusted Gamma UCL	6033						
672												
673				**Potential UCL to Use**							Use 95% Approximate Gamma UCL	5997
674												
675												
676	**Antimony**											
677												
678					**General Statistics**							
679					Number of Valid Samples	25					Number of Detected Data	5
680					Number of Unique Samples	5					Number of Non-Detect Data	20
681											Percent Non-Detects	80.00%
682												
683				**Raw Statistics**						**Log-transformed Statistics**		
684					Minimum Detected	6.4					Minimum Detected	1.856
685					Maximum Detected	63.6					Maximum Detected	4.153
686					Mean of Detected	27.93					Mean of Detected	2.997
687					SD of Detected	23.72					SD of Detected	0.948
688					Minimum Non-Detect	0.95					Minimum Non-Detect	-0.0513
689					Maximum Non-Detect	15					Maximum Non-Detect	2.708

	A	B	C	D	E	F	G	H	I	J	K	L
690												
691	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	22
692	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	3
693	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	88.00%
694												
695						UCL Statistics						
696						Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only	
697						Shapiro Wilk Test Statistic 0.905					Shapiro Wilk Test Statistic	0.962
698						5% Shapiro Wilk Critical Value 0.762					5% Shapiro Wilk Critical Value	0.762
699						Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level	
700												
701						Assuming Normal Distribution					Assuming Lognormal Distribution	
702						DL/2 Substitution Method					DL/2 Substitution Method	
703						Mean 8.295					Mean	1.196
704						SD 14.17					SD	1.373
705						95% DL/2 (t) UCL 13.14					95% H-Stat (DL/2) UCL	20.98
706												
707						Maximum Likelihood Estimate(MLE) Method					Robust ROS Method	
708						Mean 45.39					Mean in Log Scale	0.26
709						SD 17.68					SD in Log Scale	1.646
710						95% MLE (t) UCL 51.44					Mean in Original Scale	6.352
711						95% MLE (Tiku) UCL 62.53					SD in Original Scale	14.69
712											95% Percentile Bootstrap UCL	11.46
713											95% BCA Bootstrap UCL	13.5
714												
715						Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only	
716						k star (bias corrected) 0.794					Data appear Normal at 5% Significance Level	
717						Theta Star 35.2						
718						nu star 7.935						
719												
720						A-D Test Statistic 0.237					Nonparametric Statistics	
721						5% A-D Critical Value 0.686					Kaplan-Meier (KM) Method	
722						K-S Test Statistic 0.686					Mean	10.8
723						5% K-S Critical Value 0.361					SD	12.79
724						Data appear Gamma Distributed at 5% Significance Level					SE of Mean	2.865
725											95% KM (t) UCL	15.7
726						Assuming Gamma Distribution					95% KM (z) UCL	15.51
727						Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL	14.75
728						Minimum N/A					95% KM (bootstrap t) UCL	20.45
729						Maximum N/A					95% KM (BCA) UCL	40.37
730						Mean N/A					95% KM (percentile) UCL	24.62
731						Median N/A					95% KM (Chebyshev) UCL	23.29
732						SD N/A					97.5% KM (Chebyshev) UCL	28.7
733						k star N/A					99% KM (Chebyshev) UCL	39.31
734						Theta star N/A						
735						Nu star N/A					Potential UCLs to Use	
736						AppChi2 N/A					95% KM (t) UCL	15.7
737						95% Gamma Approximate UCL N/A					95% KM (Percentile Bootstrap) UCL	24.62
738						95% Adjusted Gamma UCL N/A						
739												
740												
741	Arsenic											
742												

	A	B	C	D	E	F	G	H	I	J	K	L
743	**General Statistics**											
744					Number of Valid Samples	25					Number of Unique Samples	21
745												
746	**Raw Statistics**						**Log-transformed Statistics**					
747					Minimum	2					Minimum of Log Data	0.693
748					Maximum	26.1					Maximum of Log Data	3.262
749					Mean	8.488					Mean of log Data	1.865
750					Median	6.1					SD of log Data	0.729
751					SD	7.063						
752					Coefficient of Variation	0.832						
753					Skewness	1.553						
754												
755	**Relevant UCL Statistics**											
756	**Normal Distribution Test**						**Lognormal Distribution Test**					
757					Shapiro Wilk Test Statistic	0.776					Shapiro Wilk Test Statistic	0.944
758					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
759	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
760												
761	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
762					95% Student's-t UCL	10.9					95% H-UCL	11.67
763	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	14.04
764					95% Adjusted-CLT UCL	11.28					97.5% Chebyshev (MVUE) UCL	16.51
765					95% Modified-t UCL	10.98					99% Chebyshev (MVUE) UCL	21.37
766												
767	**Gamma Distribution Test**						**Nonparametric Test**					
768					k star (bias corrected)	1.769	**Data Follow Appr. Gamma Distribution at 5% Significance Level**					
769					Theta Star	4.797						
770					nu star	88.47						
771					Approximate Chi Square Value (.05)	67.78	**Nonparametric Statistics**					
772					Adjusted Level of Significance	0.0395					95% CLT UCL	10.81
773					Adjusted Chi Square Value	66.55					95% Jackknife UCL	10.9
774											95% Standard Bootstrap UCL	10.75
775					Anderson-Darling Test Statistic	0.891					95% Bootstrap-t UCL	11.71
776					Anderson-Darling 5% Critical Value	0.757					95% Hall's Bootstrap UCL	11.02
777					Kolmogorov-Smirnov Test Statistic	0.169					95% Percentile Bootstrap UCL	10.76
778					Kolmogorov-Smirnov 5% Critical Value	0.177					95% BCA Bootstrap UCL	11.47
779	**Data follow Appr. Gamma Distribution at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	14.65
780											97.5% Chebyshev(Mean, Sd) UCL	17.31
781	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	22.54
782					95% Approximate Gamma UCL	11.08						
783					95% Adjusted Gamma UCL	11.28						
784												
785	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	11.08
786												
787												
788	**Barium**											
789												
790	**General Statistics**											
791					Number of Valid Samples	25					Number of Detected Data	15
792					Number of Unique Samples	15					Number of Non-Detect Data	10
793											Percent Non-Detects	40.00%
794												
795	**Raw Statistics**						**Log-transformed Statistics**					

	A–E	F	G–K	L
796	Minimum Detected	33.4	Minimum Detected	3.509
797	Maximum Detected	881	Maximum Detected	6.781
798	Mean of Detected	154	Mean of Detected	4.565
799	SD of Detected	216.6	SD of Detected	0.872
800	Minimum Non-Detect	31	Minimum Non-Detect	3.434
801	Maximum Non-Detect	50	Maximum Non-Detect	3.912
802				
803	Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
804	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),		Number treated as Detected	12
805	those Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	52.00%
806				
807	**UCL Statistics**			
808	**Normal Distribution Test with Detected Values Only**		**Lognormal Distribution Test with Detected Values Only**	
809	Shapiro Wilk Test Statistic	0.555	Shapiro Wilk Test Statistic	0.89
810	5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
811	**Data not Normal at 5% Significance Level**		**Data appear Lognormal at 5% Significance Level**	
812				
813	**Assuming Normal Distribution**		**Assuming Lognormal Distribution**	
814	DL/2 Substitution Method		DL/2 Substitution Method	
815	Mean	100.3	Mean	3.931
816	SD	178.5	SD	1.038
817	95% DL/2 (t) UCL	161.4	95% H-Stat (DL/2) UCL	135.2
818				
819	Maximum Likelihood Estimate(MLE) Method		Robust ROS Method	
820	Mean	-14.57	Mean in Log Scale	3.791
821	SD	277	SD in Log Scale	1.19
822	95% MLE (t) UCL	80.21	Mean in Original Scale	98.18
823	95% MLE (Tiku) UCL	107.1	SD in Original Scale	179.5
824			95% Percentile Bootstrap UCL	161
825			95% BCA Bootstrap UCL	191.6
826				
827	**Gamma Distribution Test with Detected Values Only**		**Nonparametic Test with Detected Values Only**	
828	k star (bias corrected)	1.003	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
829	Theta Star	153.5		
830	nu star	30.1		
831				
832	A-D Test Statistic	1.233	**Nonparametric Statistics**	
833	5% A-D Critical Value	0.759	Kaplan-Meier (KM) Method	
834	K-S Test Statistic	0.759	Mean	105.9
835	5% K-S Critical Value	0.227	SD	172.4
836	**Data follow approximate Gamma Distribution at 5% Significance Level**		SE of Mean	35.7
837			95% KM (t) UCL	167
838	**Assuming Gamma Distribution**		95% KM (z) UCL	164.6
839	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	163.1
840	Minimum	0	95% KM (bootstrap t) UCL	328.9
841	Maximum	881	95% KM (BCA) UCL	184.6
842	Mean	87.45	95% KM (percentile) UCL	172.1
843	Median	0	95% KM (Chebyshev) UCL	261.5
844	SD	184.4	97.5% KM (Chebyshev) UCL	328.8
845	k star	0.0846	99% KM (Chebyshev) UCL	461.1
846	Theta star	1034		
847	Nu star	4.228	**Potential UCLs to Use**	
848	AppChi2	0.814	95% KM (t) UCL	167

	A	B	C	D	E	F	G	H	I	J	K	L
849					95% Gamma Approximate UCL	454.3						
850					95% Adjusted Gamma UCL	513.3						
851												
852												
853	**Cadmium**											
854												
855						**General Statistics**						
856					Number of Valid Samples	25					Number of Detected Data	22
857					Number of Unique Samples	20					Number of Non-Detect Data	3
858											Percent Non-Detects	12.00%
859												
860				**Raw Statistics**						**Log-transformed Statistics**		
861					Minimum Detected	0.31					Minimum Detected	-1.171
862					Maximum Detected	21.8					Maximum Detected	3.082
863					Mean of Detected	3.58					Mean of Detected	0.883
864					SD of Detected	4.393					SD of Detected	0.889
865					Minimum Non-Detect	0.87					Minimum Non-Detect	-0.139
866					Maximum Non-Detect	1.1					Maximum Non-Detect	0.0953
867												
868	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	6
869	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	19
870	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	24.00%
871												
872						**UCL Statistics**						
873				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
874					Shapiro Wilk Test Statistic	0.552					Shapiro Wilk Test Statistic	0.938
875					5% Shapiro Wilk Critical Value	0.911					5% Shapiro Wilk Critical Value	0.911
876				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
877												
878				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
879					DL/2 Substitution Method						DL/2 Substitution Method	
880					Mean	3.209					Mean	0.691
881					SD	4.235					SD	0.987
882					95% DL/2 (t) UCL	4.658					95% H-Stat (DL/2) UCL	4.476
883												
884					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
885					Mean	2.52					Mean in Log Scale	0.71
886					SD	4.919					SD in Log Scale	0.959
887					95% MLE (t) UCL	4.203					Mean in Original Scale	3.219
888					95% MLE (Tiku) UCL	4.21					SD in Original Scale	4.229
889											95% Percentile Bootstrap UCL	4.825
890											95% BCA Bootstrap UCL	5.781
891												
892				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
893					k star (bias corrected)	1.255				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
894					Theta Star	2.853						
895					nu star	55.21						
896												
897					A-D Test Statistic	0.896				**Nonparametric Statistics**		
898					5% A-D Critical Value	0.761					Kaplan-Meier (KM) Method	
899					K-S Test Statistic	0.761					Mean	3.206
900					5% K-S Critical Value	0.189					SD	4.153
901	**Data follow approximate Gamma Distribution at 5% Significance Level**										SE of Mean	0.85

902											95% KM (t) UCL	4.661
903			**Assuming Gamma Distribution**								95% KM (z) UCL	4.604
904				Gamma ROS Statistics using Extrapolated Data							95% KM (jackknife) UCL	4.657
905					Minimum	0					95% KM (bootstrap t) UCL	6.618
906					Maximum	21.8					95% KM (BCA) UCL	5.068
907					Mean	3.084					95% KM (percentile) UCL	4.725
908					Median	2.3					95% KM (Chebyshev) UCL	6.912
909					SD	4.322					97.5% KM (Chebyshev) UCL	8.516
910					k star	0.156					99% KM (Chebyshev) UCL	11.67
911					Theta star	19.75						
912					Nu star	7.807					**Potential UCLs to Use**	
913					AppChi2	2.624					95% KM (BCA) UCL	5.068
914					95% Gamma Approximate UCL	9.177						
915					95% Adjusted Gamma UCL	9.937						
916												
917												
918	**Chromium**											
919												
920						**General Statistics**						
921					Number of Valid Samples	25					Number of Unique Samples	25
922												
923					**Raw Statistics**						**Log-transformed Statistics**	
924					Minimum	21.4					Minimum of Log Data	3.063
925					Maximum	471					Maximum of Log Data	6.155
926					Mean	107.1					Mean of log Data	4.274
927					Median	65.1					SD of log Data	0.846
928					SD	118.7						
929					Coefficient of Variation	1.108						
930					Skewness	2.125						
931												
932						**Relevant UCL Statistics**						
933					**Normal Distribution Test**						**Lognormal Distribution Test**	
934					Shapiro Wilk Test Statistic	0.669					Shapiro Wilk Test Statistic	0.928
935					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
936					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
937												
938					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
939					95% Student's-t UCL	147.7					95% H-UCL	153.2
940					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	182.9
941					95% Adjusted-CLT UCL	156.9					97.5% Chebyshev (MVUE) UCL	218.4
942					95% Modified-t UCL	149.3					99% Chebyshev (MVUE) UCL	288.1
943												
944					**Gamma Distribution Test**						**Nonparametric Test**	
945					k star (bias corrected)	1.254					**Data appear Lognormal at 5% Significance Level**	
946					Theta Star	85.39						
947					nu star	62.69						
948					Approximate Chi Square Value (.05)	45.48					**Nonparametric Statistics**	
949					Adjusted Level of Significance	0.0395					95% CLT UCL	146.1
950					Adjusted Chi Square Value	44.48					95% Jackknife UCL	147.7
951											95% Standard Bootstrap UCL	145.2
952					Anderson-Darling Test Statistic	1.39					95% Bootstrap-t UCL	173.8
953					Anderson-Darling 5% Critical Value	0.764					95% Hall's Bootstrap UCL	147.6
954					Kolmogorov-Smirnov Test Statistic	0.191					95% Percentile Bootstrap UCL	148.3

	A	B	C	D	E	F	G	H	I	J	K	L
955					Kolmogorov-Smirnov 5% Critical Value	0.178					95% BCA Bootstrap UCL	157.3
956					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	210.5
957											97.5% Chebyshev(Mean, Sd) UCL	255.3
958					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	343.2
959					95% Approximate Gamma UCL	147.6						
960					95% Adjusted Gamma UCL	150.9						
961												
962					**Potential UCL to Use**						Use 95% H-UCL	153.2
963												
964												
965	**Copper**											
966												
967					**General Statistics**							
968					Number of Valid Samples	25					Number of Unique Samples	25
969												
970					**Raw Statistics**						**Log-transformed Statistics**	
971					Minimum	15.7					Minimum of Log Data	2.754
972					Maximum	1310					Maximum of Log Data	7.178
973					Mean	195.5					Mean of log Data	4.498
974					Median	69.9					SD of log Data	1.157
975					SD	316.5						
976					Coefficient of Variation	1.619						
977					Skewness	2.624						
978												
979					**Relevant UCL Statistics**							
980					**Normal Distribution Test**						**Lognormal Distribution Test**	
981					Shapiro Wilk Test Statistic	0.58					Shapiro Wilk Test Statistic	0.925
982					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
983					**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**	
984												
985					**Assuming Normal Distribution**						**Assuming Lognormal Distribution**	
986					95% Student's-t UCL	303.8					95% H-UCL	333.3
987					**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL	366.7
988					95% Adjusted-CLT UCL	335.2					97.5% Chebyshev (MVUE) UCL	452.6
989					95% Modified-t UCL	309.4					99% Chebyshev (MVUE) UCL	621.2
990												
991					**Gamma Distribution Test**						**Nonparametric Test**	
992					k star (bias corrected)	0.702					**Data appear Lognormal at 5% Significance Level**	
993					Theta Star	278.6						
994					nu star	35.1						
995					Approximate Chi Square Value (.05)	22.54					**Nonparametric Statistics**	
996					Adjusted Level of Significance	0.0395					95% CLT UCL	299.7
997					Adjusted Chi Square Value	21.86					95% Jackknife UCL	303.8
998											95% Standard Bootstrap UCL	298.6
999					Anderson-Darling Test Statistic	1.892					95% Bootstrap-t UCL	401.4
1000					Anderson-Darling 5% Critical Value	0.783					95% Hall's Bootstrap UCL	364.3
1001					Kolmogorov-Smirnov Test Statistic	0.253					95% Percentile Bootstrap UCL	308.9
1002					Kolmogorov-Smirnov 5% Critical Value	0.181					95% BCA Bootstrap UCL	334.3
1003					**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL	471.5
1004											97.5% Chebyshev(Mean, Sd) UCL	590.9
1005					**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL	825.4
1006					95% Approximate Gamma UCL	304.4						
1007					95% Adjusted Gamma UCL	314						

	A	B	C	D	E	F	G	H	I	J	K	L
1008												
1009	**Potential UCL to Use**										Use 95% H-UCL	333.3
1010												
1011												
1012	**Iron**											
1013												
1014	**General Statistics**											
1015					Number of Valid Samples	25					Number of Unique Samples	23
1016												
1017	**Raw Statistics**						**Log-transformed Statistics**					
1018					Minimum	6130					Minimum of Log Data	8.721
1019					Maximum	55750					Maximum of Log Data	10.93
1020					Mean	14402					Mean of log Data	9.389
1021					Median	10200					SD of log Data	0.552
1022					SD	11592						
1023					Coefficient of Variation	0.805						
1024					Skewness	2.527						
1025												
1026	**Relevant UCL Statistics**											
1027	**Normal Distribution Test**						**Lognormal Distribution Test**					
1028					Shapiro Wilk Test Statistic	0.631					Shapiro Wilk Test Statistic	0.811
1029					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
1030	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
1031												
1032	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1033					95% Student's-t UCL	18369					95% H-UCL	17457
1034	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	20802
1035					95% Adjusted-CLT UCL	19468					97.5% Chebyshev (MVUE) UCL	23821
1036					95% Modified-t UCL	18564					99% Chebyshev (MVUE) UCL	29750
1037												
1038	**Gamma Distribution Test**						**Nonparametric Test**					
1039					k star (bias corrected)	2.528	**Data do not follow a Discernable Distribution (0.05)**					
1040					Theta Star	5696						
1041					nu star	126.4						
1042					Approximate Chi Square Value (.05)	101.4	**Nonparametric Statistics**					
1043					Adjusted Level of Significance	0.0395					95% CLT UCL	18216
1044					Adjusted Chi Square Value	99.92					95% Jackknife UCL	18369
1045											95% Standard Bootstrap UCL	18161
1046					Anderson-Darling Test Statistic	2.552					95% Bootstrap-t UCL	21234
1047					Anderson-Darling 5% Critical Value	0.752					95% Hall's Bootstrap UCL	20274
1048					Kolmogorov-Smirnov Test Statistic	0.304					95% Percentile Bootstrap UCL	18702
1049					Kolmogorov-Smirnov 5% Critical Value	0.176					95% BCA Bootstrap UCL	19854
1050	**Data not Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	24508
1051											97.5% Chebyshev(Mean, Sd) UCL	28881
1052	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	37470
1053					95% Approximate Gamma UCL	17947						
1054					95% Adjusted Gamma UCL	18221						
1055												
1056	**Potential UCL to Use**										Use 95% Chebyshev (Mean, Sd) UCL	24508
1057												
1058												
1059	**Lead**											
1060												

	A	B	C	D	E	F	G	H	I	J	K	L
1061					General Statistics							
1062					Number of Valid Samples	25					Number of Unique Samples	25
1063												
1064				Raw Statistics							Log-transformed Statistics	
1065					Minimum	19.1					Minimum of Log Data	2.95
1066					Maximum	2230					Maximum of Log Data	7.71
1067					Mean	295.4					Mean of log Data	4.787
1068					Median	99.4					SD of log Data	1.216
1069					SD	534						
1070					Coefficient of Variation	1.808						
1071					Skewness	2.817						
1072												
1073					Relevant UCL Statistics							
1074				Normal Distribution Test							Lognormal Distribution Test	
1075					Shapiro Wilk Test Statistic	0.537					Shapiro Wilk Test Statistic	0.906
1076					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
1077				Data not Normal at 5% Significance Level							Data not Lognormal at 5% Significance Level	
1078												
1079				Assuming Normal Distribution							Assuming Lognormal Distribution	
1080					95% Student's-t UCL	478.2					95% H-UCL	503.9
1081				95% UCLs (Adjusted for Skewness)							95% Chebyshev (MVUE) UCL	539.9
1082					95% Adjusted-CLT UCL	535.4					97.5% Chebyshev (MVUE) UCL	669.7
1083					95% Modified-t UCL	488.2					99% Chebyshev (MVUE) UCL	924.9
1084												
1085				Gamma Distribution Test							Nonparametric Test	
1086					k star (bias corrected)	0.62					Data do not follow a Discernable Distribution (0.05)	
1087					Theta Star	476.6						
1088					nu star	30.99						
1089					Approximate Chi Square Value (.05)	19.28					Nonparametric Statistics	
1090					Adjusted Level of Significance	0.0395					95% CLT UCL	471.1
1091					Adjusted Chi Square Value	18.65					95% Jackknife UCL	478.2
1092											95% Standard Bootstrap UCL	466.1
1093					Anderson-Darling Test Statistic	2.245					95% Bootstrap-t UCL	721.2
1094					Anderson-Darling 5% Critical Value	0.791					95% Hall's Bootstrap UCL	599.9
1095					Kolmogorov-Smirnov Test Statistic	0.288					95% Percentile Bootstrap UCL	475.5
1096					Kolmogorov-Smirnov 5% Critical Value	0.182					95% BCA Bootstrap UCL	562
1097				Data not Gamma Distributed at 5% Significance Level							95% Chebyshev(Mean, Sd) UCL	761
1098											97.5% Chebyshev(Mean, Sd) UCL	962.5
1099				Assuming Gamma Distribution							99% Chebyshev(Mean, Sd) UCL	1358
1100					95% Approximate Gamma UCL	475						
1101					95% Adjusted Gamma UCL	491.1						
1102												
1103				Potential UCL to Use							Use 99% Chebyshev (Mean, Sd) UCL	1358
1104												
1105												
1106	Manganese											
1107												
1108					General Statistics							
1109					Number of Valid Samples	25					Number of Unique Samples	23
1110												
1111				Raw Statistics							Log-transformed Statistics	
1112					Minimum	86.1					Minimum of Log Data	4.456
1113					Maximum	410.5					Maximum of Log Data	6.017

	A	B	C	D	E	F	G	H	I	J	K	L
1114					Mean	196.1					Mean of log Data	5.15
1115					Median	150					SD of log Data	0.505
1116					SD	106.8						
1117					Coefficient of Variation	0.545						
1118					Skewness	0.981						
1119												
1120					**Relevant UCL Statistics**							
1121				**Normal Distribution Test**						**Lognormal Distribution Test**		
1122					Shapiro Wilk Test Statistic	0.828					Shapiro Wilk Test Statistic	0.902
1123					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
1124				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1125												
1126				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1127					95% Student's-t UCL	232.6					95% H-UCL	239.9
1128				**95% UCLs (Adjusted for Skewness)**							95% Chebyshev (MVUE) UCL	284
1129					95% Adjusted-CLT UCL	235.7					97.5% Chebyshev (MVUE) UCL	322.7
1130					95% Modified-t UCL	233.3					99% Chebyshev (MVUE) UCL	398.6
1131												
1132				**Gamma Distribution Test**						**Nonparametric Test**		
1133					k star (bias corrected)	3.593				**Data do not follow a Discernable Distribution (0.05)**		
1134					Theta Star	54.57						
1135					nu star	179.6						
1136					Approximate Chi Square Value (.05)	149.6				**Nonparametric Statistics**		
1137					Adjusted Level of Significance	0.0395					95% CLT UCL	231.2
1138					Adjusted Chi Square Value	147.8					95% Jackknife UCL	232.6
1139											95% Standard Bootstrap UCL	230.8
1140					Anderson-Darling Test Statistic	1.135					95% Bootstrap-t UCL	238.6
1141					Anderson-Darling 5% Critical Value	0.749					95% Hall's Bootstrap UCL	233.5
1142					Kolmogorov-Smirnov Test Statistic	0.179					95% Percentile Bootstrap UCL	231.7
1143					Kolmogorov-Smirnov 5% Critical Value	0.175					95% BCA Bootstrap UCL	234.4
1144				**Data not Gamma Distributed at 5% Significance Level**							95% Chebyshev(Mean, Sd) UCL	289.2
1145											97.5% Chebyshev(Mean, Sd) UCL	329.4
1146				**Assuming Gamma Distribution**							99% Chebyshev(Mean, Sd) UCL	408.6
1147					95% Approximate Gamma UCL	235.4						
1148					95% Adjusted Gamma UCL	238.3						
1149												
1150				**Potential UCL to Use**							Use 95% Chebyshev (Mean, Sd) UCL	289.2
1151												
1152												
1153	**Mercury**											
1154												
1155					**General Statistics**							
1156					Number of Valid Samples	25					Number of Unique Samples	22
1157												
1158				**Raw Statistics**						**Log-transformed Statistics**		
1159					Minimum	0.037					Minimum of Log Data	-3.297
1160					Maximum	1.8					Maximum of Log Data	0.588
1161					Mean	0.391					Mean of log Data	-1.362
1162					Median	0.27					SD of log Data	0.923
1163					SD	0.43						
1164					Coefficient of Variation	1.098						
1165					Skewness	2.263						
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1167	**Relevant UCL Statistics**											
1168	**Normal Distribution Test**						**Lognormal Distribution Test**					
1169					Shapiro Wilk Test Statistic	0.699					Shapiro Wilk Test Statistic	0.979
1170					Shapiro Wilk Critical Value	0.918					Shapiro Wilk Critical Value	0.918
1171	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1172												
1173	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1174					95% Student's-t UCL	0.538					95% H-UCL	0.617
1175	**95% UCLs (Adjusted for Skewness)**										95% Chebyshev (MVUE) UCL	0.728
1176					95% Adjusted-CLT UCL	0.574					97.5% Chebyshev (MVUE) UCL	0.878
1177					95% Modified-t UCL	0.545					99% Chebyshev (MVUE) UCL	1.171
1178												
1179	**Gamma Distribution Test**						**Nonparametric Test**					
1180					k star (bias corrected)	1.189	**Data appear Gamma Distributed at 5% Significance Level**					
1181					Theta Star	0.329						
1182					nu star	59.43						
1183					Approximate Chi Square Value (.05)	42.7	**Nonparametric Statistics**					
1184					Adjusted Level of Significance	0.0395					95% CLT UCL	0.533
1185					Adjusted Chi Square Value	41.74					95% Jackknife UCL	0.538
1186											95% Standard Bootstrap UCL	0.53
1187					Anderson-Darling Test Statistic	0.737					95% Bootstrap-t UCL	0.625
1188					Anderson-Darling 5% Critical Value	0.766					95% Hall's Bootstrap UCL	0.608
1189					Kolmogorov-Smirnov Test Statistic	0.177					95% Percentile Bootstrap UCL	0.533
1190					Kolmogorov-Smirnov 5% Critical Value	0.178					95% BCA Bootstrap UCL	0.564
1191	**Data appear Gamma Distributed at 5% Significance Level**										95% Chebyshev(Mean, Sd) UCL	0.766
1192											97.5% Chebyshev(Mean, Sd) UCL	0.928
1193	**Assuming Gamma Distribution**										99% Chebyshev(Mean, Sd) UCL	1.246
1194					95% Approximate Gamma UCL	0.545						
1195					95% Adjusted Gamma UCL	0.557						
1196												
1197	**Potential UCL to Use**										Use 95% Approximate Gamma UCL	0.545
1198												
1199												
1200	**Thallium**											
1201												
1202	**General Statistics**											
1203					Number of Valid Samples	25					Number of Detected Data	3
1204					Number of Unique Samples	3					Number of Non-Detect Data	22
1205											Percent Non-Detects	88.00%
1206												
1207	**Raw Statistics**						**Log-transformed Statistics**					
1208					Minimum Detected	0.89					Minimum Detected	-0.117
1209					Maximum Detected	1.2					Maximum Detected	0.182
1210					Mean of Detected	0.997					Mean of Detected	-0.0132
1211					SD of Detected	0.176					SD of Detected	0.169
1212					Minimum Non-Detect	0.29					Minimum Non-Detect	-1.238
1213					Maximum Non-Detect	1.1					Maximum Non-Detect	0.0953
1214												
1215	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect	24
1216	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),										Number treated as Detected	1
1217	those Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	96.00%
1218												
1219	**UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
1220	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1221					Shapiro Wilk Test Statistic	0.774					Shapiro Wilk Test Statistic	0.778
1222					5% Shapiro Wilk Critical Value	0.767					5% Shapiro Wilk Critical Value	0.767
1223	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1224												
1225	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1226					DL/2 Substitution Method						DL/2 Substitution Method	
1227					Mean	0.426					Mean	-1.009
1228					SD	0.255					SD	0.568
1229					95% DL/2 (t) UCL	0.513					95% H-Stat (DL/2) UCL	0.538
1230												
1231					Maximum Likelihood Estimate(MLE) Method	N/A					Robust ROS Method	
1232											Mean in Log Scale	-0.592
1233											SD in Log Scale	0.237
1234											Mean in Original Scale	0.571
1235											SD in Original Scale	0.173
1236											95% Percentile Bootstrap UCL	0.632
1237											95% BCA Bootstrap UCL	0.649
1238												
1239	**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**					
1240					k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**					
1241					Theta Star	N/A						
1242					nu star	N/A						
1243												
1244					A-D Test Statistic	0.577	**Nonparametric Statistics**					
1245					5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method	
1246					K-S Test Statistic	N/A					Mean	0.903
1247					5% K-S Critical Value	N/A					SD	0.0607
1248	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.0149
1249											95% KM (t) UCL	0.928
1250	**Assuming Gamma Distribution**										95% KM (z) UCL	0.927
1251					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	0.921
1252					Minimum	N/A					95% KM (bootstrap t) UCL	1.179
1253					Maximum	N/A					95% KM (BCA) UCL	1E+31
1254					Mean	N/A					95% KM (percentile) UCL	1.2
1255					Median	N/A					95% KM (Chebyshev) UCL	0.968
1256					SD	N/A					97.5% KM (Chebyshev) UCL	0.996
1257					k star	N/A					99% KM (Chebyshev) UCL	1.051
1258					Theta star	N/A						
1259					Nu star	N/A	**Potential UCLs to Use**					
1260					AppChi2	N/A					95% KM (t) UCL	0.928
1261					95% Gamma Approximate UCL	N/A					95% KM (Percentile Bootstrap) UCL	1.2
1262					95% Adjusted Gamma UCL	N/A						
1263												
1264												
1265	**Vanadium**											
1266												
1267					**General Statistics**							
1268					Number of Valid Samples	25					Number of Detected Data	24
1269					Number of Unique Samples	22					Number of Non-Detect Data	1
1270											Percent Non-Detects	4.00%
1271												
1272	**Raw Statistics**						**Log-transformed Statistics**					

	A	B	C	D	E	F	G	H	I	J	K	L
1273					Minimum Detected	8					Minimum Detected	2.079
1274					Maximum Detected	33.3					Maximum Detected	3.506
1275					Mean of Detected	14.78					Mean of Detected	2.636
1276					SD of Detected	5.587					SD of Detected	0.334
1277					Minimum Non-Detect	12					Minimum Non-Detect	2.485
1278					Maximum Non-Detect	12					Maximum Non-Detect	2.485
1279												
1280												
1281					**UCL Statistics**							
1282				**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**		
1283					Shapiro Wilk Test Statistic	0.856					Shapiro Wilk Test Statistic	0.963
1284					5% Shapiro Wilk Critical Value	0.916					5% Shapiro Wilk Critical Value	0.916
1285				**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**		
1286												
1287				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1288					DL/2 Substitution Method						DL/2 Substitution Method	
1289					Mean	14.43					Mean	2.603
1290					SD	5.745					SD	0.368
1291					95% DL/2 (t) UCL	16.4					95% H-Stat (DL/2) UCL	15.98
1292												
1293					Maximum Likelihood Estimate(MLE) Method						Robust ROS Method	
1294					Mean	13.17					Mean in Log Scale	2.624
1295					SD	7.163					SD in Log Scale	0.332
1296					95% MLE (t) UCL	15.62					Mean in Original Scale	14.6
1297					95% MLE (Tiku) UCL	15.92					SD in Original Scale	5.545
1298											95% Percentile Bootstrap UCL	16.5
1299											95% BCA Bootstrap UCL	16.7
1300												
1301				**Gamma Distribution Test with Detected Values Only**						**Nonparametic Test with Detected Values Only**		
1302					k star (bias corrected)	7.839				**Data appear Gamma Distributed at 5% Significance Level**		
1303					Theta Star	1.886						
1304					nu star	376.3						
1305												
1306					A-D Test Statistic	0.488				**Nonparametric Statistics**		
1307					5% A-D Critical Value	0.745					Kaplan-Meier (KM) Method	
1308					K-S Test Statistic	0.745					Mean	14.6
1309					5% K-S Critical Value	0.178					SD	5.436
1310				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	1.112
1311											95% KM (t) UCL	16.51
1312				**Assuming Gamma Distribution**							95% KM (z) UCL	16.43
1313					Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL	16.5
1314					Minimum	1.235					95% KM (bootstrap t) UCL	17.1
1315					Maximum	33.3					95% KM (BCA) UCL	16.59
1316					Mean	13.21					95% KM (percentile) UCL	16.63
1317					Median	12.9					95% KM (Chebyshev) UCL	19.45
1318					SD	7.01					97.5% KM (Chebyshev) UCL	21.55
1319					k star	2.665					99% KM (Chebyshev) UCL	25.66
1320					Theta star	4.955						
1321					Nu star	133.3				**Potential UCLs to Use**		
1322					AppChi2	107.6					95% KM (BCA) UCL	16.59
1323					95% Gamma Approximate UCL	16.36						
1324					95% Adjusted Gamma UCL	16.6						
1325												

	A	B	C	D	E	F	G	H	I	J	K	L
1326												
1327	**Zinc**											
1328												
1329						**General Statistics**						
1330					Number of Valid Samples	25				Number of Unique Samples		25
1331												
1332				**Raw Statistics**						**Log-transformed Statistics**		
1333					Minimum	25.9				Minimum of Log Data		3.254
1334					Maximum	1570				Maximum of Log Data		7.359
1335					Mean	250.3				Mean of log Data		4.654
1336					Median	68.3				SD of log Data		1.183
1337					SD	409.7						
1338					Coefficient of Variation	1.637						
1339					Skewness	2.203						
1340												
1341						**Relevant UCL Statistics**						
1342				**Normal Distribution Test**						**Lognormal Distribution Test**		
1343					Shapiro Wilk Test Statistic	0.579				Shapiro Wilk Test Statistic		0.804
1344					Shapiro Wilk Critical Value	0.918				Shapiro Wilk Critical Value		0.918
1345				**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**		
1346												
1347				**Assuming Normal Distribution**						**Assuming Lognormal Distribution**		
1348					95% Student's-t UCL	390.4				95% H-UCL		410.7
1349				**95% UCLs (Adjusted for Skewness)**						95% Chebyshev (MVUE) UCL		446.9
1350					95% Adjusted-CLT UCL	423.6				97.5% Chebyshev (MVUE) UCL		552.8
1351					95% Modified-t UCL	396.5				99% Chebyshev (MVUE) UCL		760.8
1352												
1353				**Gamma Distribution Test**						**Nonparametric Test**		
1354					k star (bias corrected)	0.639				**Data do not follow a Discernable Distribution (0.05)**		
1355					Theta Star	391.4						
1356					nu star	31.97						
1357					Approximate Chi Square Value (.05)	20.05				**Nonparametric Statistics**		
1358					Adjusted Level of Significance	0.0395				95% CLT UCL		385
1359					Adjusted Chi Square Value	19.41				95% Jackknife UCL		390.4
1360										95% Standard Bootstrap UCL		383.5
1361					Anderson-Darling Test Statistic	3.331				95% Bootstrap-t UCL		449.3
1362					Anderson-Darling 5% Critical Value	0.788				95% Hall's Bootstrap UCL		409
1363					Kolmogorov-Smirnov Test Statistic	0.348				95% Percentile Bootstrap UCL		404.1
1364					Kolmogorov-Smirnov 5% Critical Value	0.182				95% BCA Bootstrap UCL		426.6
1365				**Data not Gamma Distributed at 5% Significance Level**						95% Chebyshev(Mean, Sd) UCL		607.4
1366										97.5% Chebyshev(Mean, Sd) UCL		761.9
1367				**Assuming Gamma Distribution**						99% Chebyshev(Mean, Sd) UCL		1065
1368					95% Approximate Gamma UCL	399.1						
1369					95% Adjusted Gamma UCL	412.3						
1370												
1371				**Potential UCL to Use**						Use 99% Chebyshev (Mean, Sd) UCL		1065
1372												

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Construction Worker, Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LQW-009 LQW-009 (0-1)	0 - 1	11/30/05
LQW-009 DUP-1	0 - 1	11/30/05
LQW-010 LQW-010 (0-1)	0 - 1	12/01/05
LQW-011 LQW-011	0 - 1	12/02/05
LQW-012 LQW-012 (0-1)	0 - 1	11/30/05
LQW-012 LQW-012B	0 - 1	12/02/05
LQW-013 LQW-013 (0-1)	0 - 1	12/01/05
LQW-014 LQW-014 (0-1)	0 - 1	12/01/05
LQW-015 LQW-015 (0-1)	0 - 1	11/30/05
LQW-015 LQW-015B	0 - 1	12/02/05
LQW-016 LQW-016 (0-1)	0 - 1	11/30/05
LQW-016 LQW-016B	0 - 1	12/02/05
LQW-017 LQW-017 (0-1)	0 - 1	11/30/05
LQW-017 LQW-017B	0 - 1	12/02/05
LQW-018 LQW-018 (0-1)	0 - 1	11/30/05
LQW-018 LQW-018B	0 - 1	12/02/05
SO-001-BG SO-001-BG	0 - 1	08/18/03
SO-002-BG SO-002-BG	0 - 1	08/18/03
SO-003-BG SO-003-BG	0 - 1	08/18/03
SO-004-BG SO-004-BG	0 - 1	08/18/03
SO-004-BG SO-FD01	0 - 1	08/18/03
SO-005-BG SO-005-BG	0 - 1	08/18/03
SO-044-QW SO-044-QW	0 - 1	09/10/04
SO-045-QW SO-045-QW	0 - 1	09/10/04
SO-075-QW SO-075-QW	0 - 1	09/10/04
SO-076-QW SO-076-QW	0 - 1	09/10/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Construction Worker, Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-076-QW		
SO-FD-13	**0 - 1**	**09/10/04**

Peterson Puritan Superfund Site - Operable Unit 2
Surface Soil Samples: Landfill

Scenario Timeframe:	Future
Exposure Area:	Landfill
Exposure Medium:	Surface Soil
Receptor(s):	Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LLF-002 LLF-002(0-1)	0 - 1	12/01/05
LLF-003 LLF-003(0-1)	0 - 1	12/01/05
LLF-004 LLF-004(0-1)	0 - 1	12/01/05
SO-018-LF SO-018-LF	0 - 1	08/21/03
SO-019-LF SO-019-LF	0 - 1	08/21/03
SO-020-LF SO-020-LF	0 - 1	08/21/03
SO-021-LF SO-021-LF	0 - 1	08/21/03
SO-022-LF SO-022-LF	0 - 1	08/21/03
SO-022-LF SO-FD-03	0 - 1	08/21/03
SO-023-LF SO-023-LF	0 - 1	08/22/03
SO-024-LF SO-024-LF	0 - 1	08/22/03
SO-025-LF SO-025-LF	0 - 1	08/22/03
SO-026-LF SO-026-LF	0 - 1	08/22/03
SO-027-LF SO-027-LF	0 - 1	08/22/03
SO-028-LF SO-028-LF	0 - 1	08/22/03
SO-029-LF SO-029-LF	0 - 1	08/22/03
SO-030-LF SO-030-LF	0 - 1	08/22/03
SO-032-LF SO-032-LF	0 - 1	08/28/03
SO-041-LF SO-041-LF	0 - 1	09/09/04
SO-042-LF SO-042-LF	0 - 1	09/09/04
SO-043-LF SO-043-LF	0 - 1	09/09/04
SO-W05-DF SO-W05-DF	0 - 1	08/26/03
SO-W05-DF SO-W05-DFb	0 - 1	09/20/03
SO-W06-DF SO-W06-DF	0 - 1	08/26/03
SO-W06-DF SO-FD04	0 - 1	08/27/03
SO-W06-DF SO-W06-DFb	0 - 1	09/20/03

Peterson Puritan Superfund Site - Operable Unit 2
Surface Soil Samples: Southern Bank (Lincoln Side)

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Lincoln side)
Exposure Medium:	Surface Soil
Receptor(s):	Recreational User, Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-064-BR SO-064-BR	0 - 1	09/08/04
SO-065-BR SO-065-BR	0 - 1	09/08/04
SO-066-BR SO-066-BR	0 - 1	09/08/04
SO-067-BR SO-067-BR	0 - 1	09/08/04
SO-068-BR SO-068-BR	0 - 1	09/08/04
SO-069-BR SO-069-BR	0 - 1	09/08/04
SO-070-BR SO-070-BR	0 - 1	09/08/04
SO-071-BR SO-071-BR	0 - 1	09/08/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill (Debris Fields)
Exposure Medium:	Surface Soil
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-W07-DF SO-W07-DF	0 - 1	08/26/03
SO-W07x-DF SO-W07x-DF	0 - 1	09/20/03
SO-W08-DF SO-W08-DF	0 - 1	08/26/03
SO-W08-DF SO-W08-DFb	0 - 1	09/20/03
SO-046-DF SO-046-DF	0 - 1	09/09/04
SO-046-DF SO-FD-12	0 - 1	09/09/04
SO-047-DF SO-047-DF	0 - 1	09/09/04
SO-048-DF SO-048-DF	0 - 1	09/09/04
SO-049-DF SO-049-DF	0 - 1	09/09/04

USE SURFACE SOIL COPCS FROM TABLE 2.1

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Trespasser, Recreational User, Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LNP-007 LNP-007(0-1)	0 - 1	12/01/05
LNP-008 LNP-008(0-1)	0 - 1	12/01/05
LNP-008 DUP-SS-PCDD/PCDF-1	0 - 1	12/01/05
SO-008-NP SO-008-NP	0 - 1	08/19/03
SO-009-NP SO-009-NP	0 - 1	08/19/03
SO-017-NP SO-017-NP	0 - 1	08/21/03
SO-033-NP SO-033-NP	0 - 1	09/05/03
SO-034-NP SO-034-NP	0 - 1	09/05/03
SO-035-NP SO-035-NP	0 - 1	09/06/03
SO-036-NP SO-036-NP	0 - 1	09/06/03
SO-037-NP SO-037-NP	0 - 1	09/06/03
SO-050-NP SO-050-NP	0 - 1	09/08/04
SO-051-NP SO-051-NP	0 - 1	09/08/04
SO-052-NP SO-052-NP	0 - 1	09/08/04
SO-053-NP SO-053-NP	0 - 1	09/08/04
SO-054-NP SO-054-NP	0 - 1	09/08/04
SO-055-NP SO-055-NP	0 - 1	09/08/04
SO-056-NP SO-056-NP	0 - 1	09/08/04
SO-056-NP SO-FD-11	0 - 1	09/08/04
SO-057-NP SO-057-NP	0 - 1	09/09/04
SO-058-WT SO-058-WT	0 - 1	09/08/04
SO-101-NP SO-101-NP	0 - 1	11/01/06
SO-102-NP SO-102-NP	0 - 1	10/31/06
SO-107-NP SO-107-NP	0 - 1	11/02/06

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Subsurface Soil Samples

Scenario Timeframe:	Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Subsurface Soil
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SEA-606 SSO-SPT8-5-NP	4 - 6	9/21/2003
SEA-606 SSO-SPT8-10-NP	8 - 10	9/21/2003
SEA-606 SSO-SPT8-15-NP	14 - 16	9/21/2003
SO-033-NP SO-W14-NP	1 - 5	9/5/2003
SO-034-NP SO-W13-NP	6 - 10	9/5/2003
SO-035-NP SO-15-NP	5 - 9	9/6/2003
SO-036-NP SSO-01-NP	1 - 5	9/6/2003
SO-036-NP SSO-FD01	1 - 5	9/6/2003
SO-037-NP SO-W16-NP	5 - 9	9/6/2003
SO-100-NP SO-100-NP	2 - 7	11/1/2006
SO-101-NP SO-101-NP	2 - 9	11/1/2006
SO-102-NP SO-102-NP	2 - 8.5	10/31/2006
SO-103-NP SO-103-NP	2 - 7	11/1/2006
SO-104-NP SO-104-NP	2 - 3.4	11/2/2006
SO-105-NP SO-105-NP	2 - 3.4	11/2/2006
SO-106-NP SO-106-NP	2 - 5	11/2/2006
SO-107-NP SO-107-NP	2 - 10	11/2/2006
SO-108-NP SO-108-NP	3 - 8	11/2/2006
SO-108-NP FD-110206	3 - 8	11/2/2006

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Surface Soil
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-059-WT SO-059-WT	0 - 1	09/09/04
SO-060-WT SO-060-WT	0 - 1	09/08/04
SO-061-WT SO-061-WT	0 - 1	09/09/04
SO-061-WT SO-091-WT	0 - 1	11/27/04
SO-062-WT SO-062-WT	0 - 1	09/09/04
SO-062-WT SO-092-WT	0 - 1	11/27/04
SO-062-WT SO-FD-21	0 - 1	11/27/04
SO-063-WT SO-063-WT	0 - 1	09/09/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Unnamed Island Ponds (Ponds A, D, E, P, Excavator)
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-001-UI **SE-001-UI**	**0 - 1**	**08/28/03**	2
SE-003-UI **SE-003-UI**	**0 - 1**	**08/29/03**	nearshore
SE-003-UI **SE-FD01**	**0 - 1**	**08/29/03**	2
SE-004-UI **SE-004-UI**	**0 - 1**	**08/29/03**	0
SE-005-UI **SE-005-UI**	**0 - 1**	**08/29/03**	2
SE-006-UI **SE-006-UI**	**0 - 1**	**08/29/03**	2
SE-007-UI **SE-007-UI**	**0 - 1**	**09/02/03**	2
SE-075-UI **SE-075-UI**	**0 - 1**	**09/03/04**	1
SE-076-UI **SE-076-UI**	**0 - 1**	**09/03/04**	0
SE-077-UI **SE-077-UI**	**0 - 1**	**09/06/04**	2
SE-078-UI **SE-078-UI**	**0 - 1**	**09/06/04**	2
SE-084-UI **SE-084-UI**	**0 - 1**	**09/07/04**	2
SE-085-UI **SE-085-UI**	**0 - 1**	**09/07/04**	2
SE-086-UI **SE-086-UI**	**0 - 1**	**09/07/04**	2
SE-087-UI **SE-087-UI**	**0 - 1**	**09/07/04**	2
T05PA-001 **T05PA-001**	**0 - 0.5**	**06/21/05**	nearshore
T05PA-003 **T05PA-003**	**0 - 0.5**	**06/21/05**	nearshore
T05PD-002 **BD062105**	**0 - 0.5**	**06/21/05**	shallow
T05PD-002 **T05PD-002**	**0 - 0.5**	**06/21/05**	shallow

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Backwater and Pond F)
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-008-BR **SE-008-BR**	**0 - 1**	**09/02/03**	nearshore
SE-023-BR **SE-023-BR**	**0 - 1**	**09/06/03**	2 - 3
SE-024-BR **SE-024-BR**	**0 - 1**	**09/06/03**	2
SE-025-BR **SE-025-BR**	**0 - 1**	**09/06/03**	2
SE-064-BR **SE-064-BR**	**0 - 1**	**09/02/04**	2
SE-065-BR **SE-065-BR**	**0 - 1**	**09/02/04**	2
SE-066-BR **SE-066-BR**	**0 - 1**	**09/03/04**	2
SE-067-BR **SE-067-BR**	**0 - 1**	**09/03/04**	2
SE-068-BR **SE-068-BR**	**0 - 1**	**09/06/04**	2
SE-071-BR **SE-071-BR**	**0 - 1**	**09/06/04**	2
SE-072-BR **SE-072-BR**	**0 - 1**	**09/06/04**	1.8
SE-082-BR **SE-082-BR**	**0 - 1**	**09/06/04**	2
SE-083-BR **SE-083-BR**	**0 - 1**	**09/06/04**	2
T05BR-007 **T05BR-007**	**0 - 0.5**	**06/23/05**	nearshore
T05PF-004 **T05PF-004**	**0 - 0.5**	**06/21/05**	shallow

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-032-BR **SE-032-BR**	**0 - 1**	**09/10/03**	2
SE-048-BR **SE-048-BR**	**0 - 1**	**08/31/04**	2
SE-051-DF **SE-051-DF**	**0 - 1**	**08/31/04**	inlet, assumed to be shallow

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Adjacent to Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-019-LF **SE-019-LF**	**0 - 1**	**09/05/03**	0
SE-020-LF **SE-020-LF**	**0 - 1**	**09/05/03**	0.4
SE-028-BR **SE-028-BR**	**0 - 1**	**09/08/03**	2
SE-029-BR **SE-029-BR**	**0 - 1**	**09/09/03**	2
SE-029-BR **SE-FD03**	**0 - 1**	**09/09/03**	2
SE-030-BR **SE-030-BR**	**0 - 1**	**09/09/03**	2
SE-031-BR **SE-031-BR**	**0 - 1**	**09/09/03**	2
SE-041-BR **SE-041-BR**	**0 - 1**	**08/30/04**	2
SE-043-BR **SE-043-BR**	**0 - 1**	**08/30/04**	2
SE-047-BR **SE-047-BR**	**0 - 1**	**08/30/04**	2
SE-070-LF **SE-070-LF**	**0 - 1**	**09/02/04**	0
SE-073-LF **SE-073-LF**	**0 - 1**	**09/03/04**	0
SE-074-LF **SE-074-LF**	**0 - 1**	**09/03/04**	0
T05BR-002 **T05BR-002**	**0 - 0.5**	**06/21/05**	nearshore
T05BR-004 **BD062205**	**0 - 0.5**	**06/22/05**	nearshore
T05BR-004 **T05BR-004**	**0 - 0.5**	**06/22/05**	nearshore
T05BR-006 **T05BR-006**	**0 - 0.5**	**06/22/05**	nearshore

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Downstream of Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-021-NP **SE-021-NP**	**0 - 1**	**09/05/03**	0.8
SE-026-BR **SE-026-BR**	**0 - 1**	**09/08/03**	2
SE-026-BR **SE-042-BR**	**0 - 1**	**08/31/04**	2
SE-026-BR **SE-FD-02**	**0 - 1**	**09/08/03**	2
SE-027-BR **SE-027-BR**	**0 - 1**	**09/08/03**	2
SE-046-BR **SE-046-BR**	**0 - 1**	**08/30/04**	2
SE-046-BR **SE-FD-11**	**0 - 1**	**08/30/04**	2
SE-069-NP **SE-069-NP**	**0 - 1**	**09/02/04**	0.8
SE-069-NP **SE-FD-12**	**0 - 1**	**09/02/04**	0.8
T05BR-001 **T05BR-001**	**0 - 0.5**	**06/21/05**	nearshore
T05BR-003 **T05BR-003**	**0 - 0.5**	**06/21/05**	nearshore
T05BR-005 **T05BR-005**	**0 - 0.5**	**06/22/05**	nearshore

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SE-009-WT SE-009-WT	0 - 1	09/03/03
SE-010-WT SE-010-WT	0 - 1	09/03/03
SE-011-WT SE-011-WT	0 - 1	09/03/03
SE-012-WT SE-012-WT	0 - 1	09/03/03
SE-013-WT SE-013-WT	0 - 1	09/04/03
SE-014-WT SE-014-WT	0 - 1	09/04/03
SE-016-WT SE-016-WT	0 - 1	09/04/03
SE-017-WT SE-017-WT	0 - 1	09/05/03
SE-018-WT SE-018-WT	0 - 1	09/05/03
SE-052-WT SE-052-WT	0 - 1	09/01/04
SE-053-WT SE-053-WT	0 - 1	08/31/04
SE-055-WT SE-055-WT	0 - 1	08/31/04
SE-057-WT SE-057-WT	0 - 1	09/02/04
SE-058-WT SE-058-WT	0 - 1	09/01/04
SE-059-WT SE-059-WT	0 - 1	09/01/04
SE-060-WT SE-060-WT	0 - 1	09/02/04
SE-061-WT SE-061-WT	0 - 1	09/01/04
SE-062-WT SE-062-WT	0 - 1	09/01/04
SE-063-WT SE-063-WT	0 - 1	09/06/04
T05WB-001 T05WB-001	0 - 0.5	06/21/05
T05WB-002 T05WB-002	0 - 0.5	06/21/05
T05WD-003 T05WD-003	0 - 0.5	06/21/05

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: OU2

Scenario Timeframe:	Current/Future
Exposure Area:	OU2 (Ponds and Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR3-FI-1 **BR3-FI-1-FILL**	**09/27/05**	BR-3	Largemouth bass
BR3-FI-2 **BR3-FI-2-FILL**	**09/27/05**	BR-3	Largemouth bass
BR3-FI-3 **BR3-FI-3-FILL**	**09/27/05**	BR-3	Largemouth bass
BR3-FI-4 **BR3-FI-4-FILL**	**09/27/05**	BR-3	Largemouth bass
BR3-FI-5 **BR3-FI-5-FILL**	**09/27/05**	BR-3	Largemouth bass
BR3-FI-6 **BR3-FI-6-FILL**	**09/28/05**	BR-3	Largemouth bass
BR3-FI-7 **BR3-FI-7-FILL**	**09/28/05**	BR-3	Largemouth bass
BR3-FI-8 **BR3-FI-8-FILL**	**09/28/05**	BR-3	Largemouth bass
BR3-FI-9 **BR3-FI-9-FILL**	**09/27/05**	BR-3	White sucker
BR3-FI-10 **BR3-FI-10-FILL**	**09/27/05**	BR-3	White sucker
BR3-FI-11 **BR3-FI-11-FILL**	**09/27/05**	BR-3	White sucker
BR3-FI-12 **BR3-FI-12-FILL**	**09/27/05**	BR-3	White sucker
BR3-FI-13 **BR3-FI-13-FILL**	**09/27/05**	BR-3	White sucker
BR3-FI-14 **BR3-FI-14-FILL**	**09/28/05**	BR-3	White sucker
BR3-FI-15 **BR3-FI-15-FILL**	**09/28/05**	BR-3	White sucker
BR3-FI-16 **BR3-FI-16-FILL**	**09/28/05**	BR-3	White sucker
P1-FI-25 **P1-FI-25-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-26 **P1-FI-26-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-27 **P1-FI-27-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-28 **P1-FI-28-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-29 **P1-FI-29-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-30 **P1-FI-30-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-31 **P1-FI-31-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-32 **P1-FI-32-FILL**	**09/27/05**	Pond A (P-1)	Largemouth bass
P1-FI-33 **P1-FI-33-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-34 **P1-FI-34-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-35 **P1-FI-35-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-36 **P1-FI-36-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-37 **P1-FI-37-FILL**	**09/27/05**	Pond A (P-1)	White sucker

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: OU2

Scenario Timeframe:	Current/Future
Exposure Area:	OU2 (Ponds and Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
P1-FI-38 **P1-FI-38-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-39 **P1-FI-39-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P1-FI-40 **P1-FI-40-FILL**	**09/27/05**	Pond A (P-1)	White sucker
P2-FI-49 **P2-FI-49-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-50 **P2-FI-50-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-51 **P2-FI-51-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-52 **P2-FI-52-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-53 **P2-FI-53-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-54 **P2-FI-54-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-55 **P2-FI-55-FILL**	**09/27/05**	Pond F (P-2)	Bluegill
P2-FI-56 **P2-FI-56-FILL**	**09/27/05**	Pond F (P-2)	Pumpkinseed
P2-FI-57 **P2-FI-57-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-58 **P2-FI-58-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-59 **P2-FI-59-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-60 **P2-FI-60-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-61 **P2-FI-61-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-62 **P2-FI-62-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-63 **P2-FI-63-FILL**	**09/27/05**	Pond F (P-2)	White sucker
P2-FI-64 **P2-FI-64-FILL**	**09/27/05**	Pond F (P-2)	White sucker

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: BR2

Scenario Timeframe:	Current/Future
Exposure Area:	BR-2 (Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR2-FI-73 **BR2-FI-73-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-74 **BR2-FI-74-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-75 **BR2-FI-75-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-76 **BR2-FI-76-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-77 **BR2-FI-77-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-78 **BR2-FI-78-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-79 **BR2-FI-79-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-80 **BR2-FI-80-FILL**	**09/28/05**	BR-2	Largemouth bass
BR2-FI-81 **BR2-FI-81-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-82 **BR2-FI-82-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-83 **BR2-FI-83-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-84 **BR2-FI-84-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-85 **BR2-FI-85-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-86 **BR2-FI-86-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-87 **BR2-FI-87-FILL**	**09/28/05**	BR-2	White sucker
BR2-FI-88 **BR2-FI-88-FILL**	**09/28/05**	BR-2	White sucker

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: BR-1

Scenario Timeframe:	Current/Future
Exposure Area:	BR-1 (Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR1-FI-113 **BR1-FI-113-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-114 **BR1-FI-114-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-115 **BR1-FI-115-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-116 **BR1-FI-116-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-117 **BR1-FI-117-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-118 **BR1-FI-118-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-119 **BR1-FI-119-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-120 **BR1-FI-120-FILL**	**09/29/05**	BR-1	White sucker
BR1-FI-121 **BR1-FI-121-FILL**	**09/29/05**	BR-1	Bluegill
BR1-FI-122 **BR1-FI-122-FILL**	**09/29/05**	BR-1	Bluegill
BR1-FI-123 **BR1-FI-123-FILL**	**09/29/05**	BR-1	Bluegill
BR1-FI-124 **BR1-FI-124-FILL**	**09/29/05**	BR-1	Bluegill
BR1-FI-125 **BR1-FI-125-FILL**	**09/29/05**	BR-1	Bluegill
BR1-FI-126 **BR1-FI-126-FILL**	**09/29/05**	BR-1	Pumpkinseed
BR1-FI-127 **BR1-FI-127-FILL**	**09/29/05**	BR-1	Pumpkinseed
BR1-FI-128 **BR1-FI-128-FILL**	**09/29/05**	BR-1	Pumpkinseed

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: P-6

Scenario Timeframe:	Current/Future
Exposure Area:	P-6 (Background/Reference Area)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
P6-FI-97 **P6-FI-97-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-98 **P6-FI-98-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-99 **P6-FI-99-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-100 **P6-FI-100-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-101 **P6-FI-101-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-102 **P6-FI-102-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-103 **P6-FI-103-FILL**	**09/29/05**	P-6	Largemouth bass
P6-FI-104 **P6-FI-104-FILL**	**09/29/05**	P-6	Largemouth bass

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Backwater and Pond F)
Exposure Medium:	Surface Water
Receptor(s):	Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-008-BR SW-008-BR	09/02/03
SE-023-BR SW-023-BR	09/06/03
SE-024-BR SW-024-BR	09/06/03
SE-025-BR SW-025-BR	09/06/03
SE-064-BR SW-064-BR	09/02/04
SE-065-BR SW-065-BR	09/02/04
SE-066-BR SW-066-BR	09/03/04
SE-067-BR SW-067-BR	09/03/04
SE-068-BR SW-068-BR	09/06/04
SE-071-BR SW-071-BR	09/06/04
SE-072-BR SW-072-BR	09/06/04
SE-081-BR SW-081-BR	09/07/04
SE-082-BR SW-082-BR	09/06/04
SE-083-BR SW-083-BR	09/06/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-032-BR **SW-032-BR**	**09/10/03**
SE-048B-BR **SW-048-BR**	**08/31/04**
SE-051-DF **SW-051-DF**	**08/31/04**

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Adjacent to Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-020-LF SW-020-LF	09/05/03
SE-028-BR SW-028-BR	09/08/03
SE-029-BR SW-029-BR	09/09/03
SE-029-BR SW-FD-03	09/09/03
SE-030-BR SW-030-BR	09/09/03
SE-031-BR SW-031-BR	09/09/03
SE-041-BR SW-041-BR	08/30/04
SE-043-BR SW-043-BR	08/30/04
SE-047-BR SW-047-BR	08/30/04
SE-074-LF SW-074-LF	09/10/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Downstream of Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-021-NP SW-021-NP	09/05/03
SE-026-BR SW-026-BR	09/08/03
SE-026-BR SW-FD-02	09/08/03
SE-026-BR SW-042-BR	08/31/04
SE-027-BR SW-027-BR	09/08/03
SE-046-BR SW-046-BR	08/30/04
SE-046-BR SW-FD-11	08/30/04
SE-069-NP SW-069-NP	09/02/04
SE-069-NP SW-FD-12	09/02/04
SW-3 Pratt Cumberland SW-3 Pratt Cumberland	04/04/05
SW-3 Pratt SW-3 Pratt	04/04/05
SW-4 Pratt Lincoln SW-4 Pratt Lincoln	04/04/05
SW-4 Pratt SW-4 Pratt	04/04/05

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-009-WT SW-009-WT	09/03/03
SE-010-WT SW-010-WT	09/03/03
SE-011-WT SW-011-WT	09/03/03
SE-012-WT SW-012-WT	09/03/03
SE-013-WT SW-013-WT	09/04/03
SE-014-WT SW-014-WT	09/04/03
SE-016-WT SW-016-WT	09/04/03
SE-017-WT SW-017-WT	09/05/03
SE-052-WT SW-052-WT	09/01/04
SE-053B-WT SW-053-WT	09/09/04
SE-057-WT SW-057-WT	09/02/04
SE-058-WT SW-058-WT	09/01/04
SE-059-WT SW-059-WT	09/01/04
SE-060-WT SW-060-WT	09/02/04
SE-061-WT SW-061-WT	09/01/04
SE-062-WT SW-062-WT	09/01/04

Peterson Puritan Superfund Site - Operable Unit 2
Leachate Samples[1]: Landfill and Unnamed Island

Scenario Timeframe:	Current/Future
Exposure Area:	Landfill
Exposure Medium:	Leachate
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Dermal

Location ID Sample ID	Date Collected
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GNP-708 GNP-708	11/29/05
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C2 GW-006-LF	09/30/03
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-607 GW-072-UI	10/01/04
SEA-608 GW-026-UI	10/03/03
SEA-608 GW-FD03	10/03/03
SEA-608 GW-073-UI	10/01/04
SEA-608 SEA-608	01/10/06

Peterson Puritan Superfund Site - Operable Unit 2
Leachate Samples[1]: Landfill and Unnamed Island

Scenario Timeframe:	Current/Future
Exposure Area:	Landfill
Exposure Medium:	Leachate
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Dermal

Location ID Sample ID	Date Collected

Note:

(1) Because there are no "true" leachate data for the site, as discussed, groundwater data will be used as a surrogate to evaluate potential leachate exposures to the trespasser and recreational user. Screening of leachate data using samples below was performed (see Table 2.10) and COPCs were used with the surrogate groundwater data to calculate EPCs.

Location ID Sample ID	Date Collected
UI-TT-06 GW-LE01-UI	**08/19/03**
UI-TT-06 GW-FD01	**08/19/03**
UI-TT-10 GW-LE02-UI	**08/19/03**
LF-TT-02 GW-LE3-LF	**08/21/03**
LF-TT-04 GW-LE4-LF	**08/21/03**
LF-TT-07 GW-LE5-LF	**08/22/03**
LF-TT-09 GW-LE6-LF	**08/22/03**

Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GLF-706 GLF-706	11/29/05
GNP-705 GNP-705	11/28/05
GNP-708 GNP-708	11/29/05
GUI-701 GUI-701	12/08/05
GUI-702 GUI-702	01/10/06
GUI-703 GUI-703	01/10/06
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-109AA GW-003-LF	09/30/03
MW-109AA GW-048-LF	09/23/04
MW-109AA GW-FD-11	09/23/04
MW-111AA GW-015-WT	10/02/03
MW-111AA GW-052-WT	09/24/04
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C2 GW-006-LF	09/30/03

Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
P-7 GW-014-LF	10/02/03
P-7 GW-059-LF	09/28/04
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-601 GW-017-LF	10/02/03
SEA-601 GW-060-LF	09/28/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-605 GW-028-LF	10/04/03
SEA-605 GW-068-LF	09/30/04
SEA-605 SEA-605	12/07/05
SEA-606 GW-024-NP	10/04/03
SEA-606 GW-069-NP	09/30/04
SEA-606 SEA-606	12/05/05
SEA-607 GW-025-UI	10/03/03
SEA-607 GW-072-UI	10/01/04
SEA-608 GW-026-UI	10/03/03

Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SEA-608 **GW-FD03**	**10/03/03**
SEA-608 **GW-073-UI**	**10/01/04**
SEA-608 **SEA-608**	**01/10/06**

USE COPCS FROM TABLE 2.7

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
GLF-700a GLF-700a	12/06/05
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GLF-706 GLF-706	11/29/05
GLF-706a GLF-706a	11/29/05
GLF-706a DUP-1	11/29/05
GNP-705 GNP-705	11/28/05
GNP-705B GNP-705B	12/01/05
GNP-707 GNP-707	11/29/05
GNP-708 GNP-708	11/29/05
GNP-708A GNP-708A	12/01/05
GUI-701 GUI-701	12/08/05
GUI-702 GUI-702	01/10/06
GUI-703 GUI-703	01/10/06
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-106A GW-009-DF	10/01/03
MW-106A GW-074-DF	09/30/04
MW-106A MW-106A	12/02/05
MW-106B GW-078-DF	09/28/04
MW-106B GW-FD-12	09/28/04
MW-106B MW-106B	12/02/05
MW-106C GW-077-DF	09/28/04
MW-106C MW-106C	12/02/05

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-108A GW-010-LF	10/01/03
MW-108A GW-046-LF	09/22/04
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-108B GW-043-LF	09/21/04
MW-108C GW-058-LF	09/22/04
MW-109A GW-001-LF	09/29/03
MW-109A GW-047-LF	09/23/04
MW-109AA GW-003-LF	09/30/03
MW-109AA GW-048-LF	09/23/04
MW-109AA GW-FD-11	09/23/04
MW-109B GW-042-LF	09/21/04
MW-109B GW-DUP-01	09/21/04
MW-109C GW-041-LF	09/21/04
MW-110A GW-004-WT	09/30/03
MW-110A GW-045-WT	09/22/04
MW-110B GW-005-WT	09/30/03
MW-110B GW-FD02	09/30/03
MW-110B GW-044-WT	09/22/04
MW-110C GW-053-WT	09/23/04
MW-111A GW-016-WT	10/02/03
MW-111A GW-051-WT	09/24/04
MW-111AA GW-015-WT	10/02/03
MW-111AA GW-052-WT	09/24/04

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-111B GW-050-WT	09/24/04
MW-111C GW-057-WT	09/20/04
MW-112A GW-019-NP	10/02/03
MW-112A GW-055-NP	09/27/04
MW-112A MW-112A	11/30/05
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-112B GW-054-NP	09/27/04
MW-112B MW-112B	11/30/05
MW-112C GW-049-NP	09/22/04
MW-112C MW-112C	11/30/05
MW-502 MW-502	12/08/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05
MW-B1 GW-008-LF	10/01/03
MW-B1 GW-065-LF	09/24/04
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C1 GW-007-LF	09/30/03
MW-C1 GW-070-LF	09/28/04
MW-C1 MW-C1	12/07/05
MW-C2 GW-006-LF	09/30/03

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
MW-EA-1 GW-075-WT	10/01/04
MW-EA-1 MW-EAI	12/09/05
MW-EA-3 GW-076-WT	10/01/04
P-7 GW-014-LF	10/02/03
P-7 GW-059-LF	09/28/04
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-601 GW-017-LF	10/02/03
SEA-601 GW-060-LF	09/28/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-602B GW-023-LF	10/03/03
SEA-602B GW-061-LF	10/01/04
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-605 GW-028-LF	10/04/03
SEA-605 GW-068-LF	09/30/04

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
SEA-605 SEA-605	12/07/05
SEA-606 GW-024-NP	10/04/03
SEA-606 GW-069-NP	09/30/04
SEA-606 SEA-606	12/05/05
SEA-607 GW-025-UI	10/03/03
SEA-607 GW-072-UI	10/01/04
SEA-608 GW-026-UI	10/03/03
SEA-608 GW-FD03	10/03/03
SEA-608 GW-073-UI	10/01/04
SEA-608 SEA-608	01/10/06

Note:
EPC for RME scenario will be maximum detected concentration.
EPC for CTE scenario will be average plume concentration.

Peterson Puritan Superfund Site - Operable Unit 2
Surface Soil Samples: Southern Bank (Lincoln Side)

Scenario Timeframe:	Future
Exposure Area:	Southern Bank (Lincoln side)
Exposure Medium:	Surface Soil to Outdoor Air
Receptor(s):	Construction worker

Location ID Sample ID	Sample Depth	Date Collected
SO-064-BR		
SO-064-BR	**0 - 1**	**09/08/04**
SO-065-BR		
SO-065-BR	**0 - 1**	**09/08/04**
SO-066-BR		
SO-066-BR	**0 - 1**	**09/08/04**
SO-067-BR		
SO-067-BR	**0 - 1**	**09/08/04**
SO-068-BR		
SO-068-BR	**0 - 1**	**09/08/04**
SO-069-BR		
SO-069-BR	**0 - 1**	**09/08/04**
SO-070-BR		
SO-070-BR	**0 - 1**	**09/08/04**
SO-071-BR		
SO-071-BR	**0 - 1**	**09/08/04**

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples: Quinnville Wellfield

Scenario Timeframe:	Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Groundwater to Indoor/Outdoor Air
Receptor(s):	Commercial Worker/Construction Worker

Location ID Sample ID	Date Collected
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-502 MW-502	12/08/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples: Quinnville Wellfield

Scenario Timeframe:	Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Groundwater to Indoor Air
Receptor(s):	Commercial Worker/Resident

Location ID Sample ID	Date Collected
GNP-705 GNP-705	11/28/05
GNP-705B GNP-705B	12/01/05
GNP-707 GNP-707	11/29/05
GNP-708 GNP-708	11/29/05
GNP-708A GNP-708A	12/01/05
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-112A GW-019-NP	10/02/03
MW-112A GW-055-NP	09/27/04
MW-112A MW-112A	11/30/05
MW-112B GW-054-NP	09/27/04
MW-112B MW-112B	11/30/05
MW-112C GW-049-NP	09/22/04
MW-112C MW-112C	11/30/05
SEA-606 GW-024-NP	10/04/03
SEA-606 GW-069-NP	09/30/04
SEA-606 SEA-606	12/05/05

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From:
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Date:
May 15, 2007

ARCADIS BBL Project No.:
B0037902.0000.0300

Subject:
Petersen Puritan Air Modeling

ARCADIS BBL estimated ambient air concentrations for constituents of potential concern (COPC) at the Petersen/Puritan, Inc. Superfund Site (the site) to support the Human Health Risk Assessment (HHRA) for Operable Unit 2 (OU2). COPC concentrations were estimated at discrete distance intervals from passive gas vents located on the J.M. Mills Landfill (the landfill) using analytical data from ambient air grab samples and conservative exposure assumptions in the USEPA SCREEN3 air dispersion model. The results of the analysis indicate that COPC concentrations in ambient air generally decrease with increasing distance from the vents. Given that these results are based on conservative exposure assumptions, these results likely contribute to an overestimate of potential exposure on the landfill.

Site Setting

The site is located in the town of Cumberland along the Blackstone River in Providence County, Rhode Island. The site is approximately two miles long and extends 2,000 feet to the east and west of the main river channel. The site includes an industrial park, an inactive landfill and solid waste transfer station, sand and gravel operations, part of a National Heritage Corridor and state park, municipal water supply wells, and a number of undeveloped areas along the river.

This analysis evaluates potential ambient air concentrations above the landfill. The landfill covers approximately 36 acres and is bounded on the east by the Providence and Worcester Railroad and on the

west by the river. The landfill is greater than 80 feet in elevation at its crest, with steep slopes that are covered with vegetation.

Meteorological data obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) for the Pawtucket, Rhode Island weather station indicate that winds generally blow from the southwest, west or north in the vicinity of the site (NCDC 2007).

Methods

Ambient air concentrations were estimated using the USEPA SCREEN3 model. SCREEN3 is a single source Gaussian plume model which provides maximum ground-level ambient air concentrations for point, area, flare, and volume sources. SCREEN3 can also generate concentration estimates for the cavity zone in building downwash scenarios, and concentrations due to inversion break-up and shoreline fumigation. SCREEN3 is a screening version of the Industrial Source Complex model, Version 3 (ISC3). SCREEN3 assumes that the constituents do not undergo chemical transformation, and no other removal processes, such as wet or dry deposition, act on the plume during transport (USEPA 1995).

Table 1 presents the SCREEN3 model input parameters used for this analysis. Limited data were available to characterize the landfill vents. Shields Environmental Associates, Inc. (Shields) indicates that vent height ranges from ground surface to approximately 3 feet, and inside vent diameter is 4 inches (pers. comm., J. Knauss, May 1, 2007). Default values were used for stack gas temperature (298 K) and ambient gas temperature (293 K). Receptor height (1.75 m or 5.7 ft) above ground was estimated using professional judgment for standard breathing zone height.

Landfill vent gas flow rate was estimated based on the range of values provided in the literature. Two studies present landfill gas flow rates (Kleinfelder 2006; Gebert and Groengroeft 2006). Kleinfelder (2006) reports gas flow rates from passive vents at the Old Southington Landfill Superfund Site in Connecticut ranging from 0.088 ft^3/min (0.000042 m^3/sec) to 16.1 ft^3/min (0.00760 m^3/sec). Gebert and Groengroeft (2006) report gas flow rates from biofiltered passive vents at a harbor sludge disposal landfill in Hamburg, Germany ranging from -4 m^3/hr (-0.001 m^3/sec) to 4 m^3/hr (0,001 m^3/sec). As noted by Gebert and Groengroeft (2006) passive emission rates of landfill gas are influenced by the pressure gradient between the landfill and the atmosphere, and as such these rates are sensitive to local conditions. Therefore, the rates from the Old Southington Landfill in Connecticut were considered more representative of potential emission rates for the Petersen Puritan landfill, located in Rhode Island, than the landfill located in Germany. For conservatism, the maximum reported gas emission rate from the Old Southington Landfill was selected for this analysis.

Site-specific gas emission rates from landfill vents were unavailable. Emission rates were therefore estimated using the landfill vent gas flow rate and the analytical results of ambient air grab samples collected by Shields in October 2003 near three vents located near the crest of the landfill (AR001-LF,

ARFD-1, AR002-LF, AR003-LF). Half detection limits were used for COPCs that were not detected in air grab samples. Emission rates for each vent were estimated using the following equation:

$$ER = EC * CF * GFR$$

where:

ER = emission rate (g/sec)

EC = air emission concentration (ug/m^3)

CF = conversion factor (10^{-6} g/ug)

GFR = gas flow rate (m^3/sec)

Model assumptions include a single point emission source for a "representative stack." The USEPA (1992) *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* recommends merging emissions parameters for multiple stacks with similar parameters. As the vents on the Petersen Puritan landfill occupy an area less than 100 m in linear distance and have similar construction, emission rates from each vent were summed to generate the emission rates used for each COPC in the model. These point emission rates are presented in Table 2.

Given the environmental setting for the landfill, particularly the distance to buildings and other urban structures, rural dispersion coefficients were used in the model, and no building downwash was assumed.

The landfill vents are located near and just below the crest of the landfill. The crest may exceed vent openings by up to approximately 10 feet within a lateral distance of 20 to 30 feet from the vents. This scenario was modeled using the complex terrain option in SCREEN3. Complex terrain scenarios are utilized for scenarios in which terrain elevations exceed stack height. In these calculations, receptor height is assumed to be at ground surface on the elevated terrain.

Flat terrain was also modeled, assuming full meteorology (i.e., the model evaluates potential plume concentrations for each stability class and associated wind speeds) for distances from the "representative stack" of 1 to 650 meters (m). The nearest fenceline to the vents is located approximately 90 m to the northeast. The farthest fenceline to the vents is located approximately 650 m to the northwest.

Results

SCREEN3 outputs include the maximum modeled 1-hour concentration across stability classes for each distance modeled from the source (USEPA 1995).

The results of the complex terrain modeling indicate that plume height is less than the terrain height at the crest of the landfill. As such, modeled exposure to receptors at ground surface on the crest of the landfill is negligible.

Flat terrain model results for each COPC are presented in Attachment A. The results indicate that maximum concentrations are present nearest the source (the vents); concentrations decrease as distance increases laterally toward the fenceline and away from the vent location.

The results from the flat terrain scenario were assumed to represent COPC concentrations on concentric circles radiating out from the "representative stack," which was assumed to occupy the location of the central vent, Vent 3 (Figure 1). Modeled concentrations for locations within the area of the landfill were used to estimate reasonable maximum exposure (RME) and central tendency exposure (CTE) ambient air concentrations across the landfill.

RME ambient air concentrations for the landfill were estimated by averaging modeled 1-hour maximum concentrations for points within the landfill along the approximate four cardinal (North, South, East, West) and four intercardinal (Northeast, Southeast, Southwest, Northwest) directions at each modeled distance from the plume. Figure 1 presents approximate locations for the modeled air concentration locations included in the RME ambient air concentration calculations (in red). RME exposure point concentrations are presented in Table 3.

CTE ambient air concentrations for the landfill were estimated by multiplying the RME ambient air concentration by a factor of 0.7 to estimate the maximum 8-hour concentration across the landfill. USEPA (1992) recommends the use of this factor to convert 1-hour maximum concentrations into 8-hour maximum concentrations. CTE exposure point concentrations are presented in Table 3.

Uncertainty Assessment

The input parameters for the model are generally conservative, and likely contribute to an overestimate of exposure. Specifically, the use of the maximum reported landfill gas flow rate is a conservative estimate of emission rates. The relationship between atmospheric pressure and landfill gas emission rates has been documented in the literature (GC Environmental 1985; Gebert and Groengroeft 2006). In general, landfill internal pressure increases and decreases in response to atmospheric pressure. As such, landfill gas flow rates are inversely related to atmospheric pressure. As atmospheric pressure decreases, landfill gas pressure and landfill gas flow rates may increase. Conversely, landfill gas flow rates may decrease during periods of increasing atmospheric pressure, and may cause a temporary infiltration of ambient air into the landfill (GC Environmental 1985). Gebert and Groengroeft (2006) documented changes in gas flux direction on average every 20 hours (i.e., more than once a day). The authors concluded gas emissions were driven by momentary pressure buildups inside the landfill, conditions which were not sustained for long periods of time (Gebert and Groengroeft 2006). Given the fluctuating nature of landfill

gas emission rates, the use of a maximum landfill gas flow rate to model long-term ambient air conditions produces a highly conservative estimate of exposure.

Model results for the crest of the landfill indicate that exposure to receptors at ground surface is negligible. Winds generally come from the southwesterly to northerly direction in the vicinity of the site. As such, the direction of vent plumes, if any, is anticipated to be toward the northeast to south, and away from the crest of the landfill. Therefore, uncertainty regarding modeled exposure to receptors at the crest of the landfill likely contributes to an overestimate of exposure.

Model results for flat terrain also contribute to an overestimate of exposure. The location of the vents is at the crest of the landfill. The slopes of the landfill are steep. Therefore, receptors located at the base of the landfill may be located below the plume, where actual ambient air concentrations of COPC may be less than modeled concentrations. As such, the uncertainty associated with the use of flat terrain calculations likely contributes to an overestimate of potential exposure to receptors below the crest of the landfill, on the landfill property, or at the property fenceline.

MPB/PG/TN

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Table 1
SCREEN3 Input Parameter Values
Peterson Puritan Superfund Site

Parameter	Units	Value
Emission Rate	g/s	Chemical-Specific
Stack Height	m	1
Stack Inside Diameter	m	0.1016
Stack Gas Flow Rate	m	0.008
Stack Gas Temperature	K	298
Ambient Gas Temperature	K	293
Receptor Height Above Ground	m	1.75

Notes:
g/s = grams per second
m = meters
K = Kelvin

Table 2
Grab Sample Analytical Data and Estimated Landfill Vent Emission Rates
Peterson Puritan Superfund Site

Gas Flow Rate: 0.0076 m3/sec

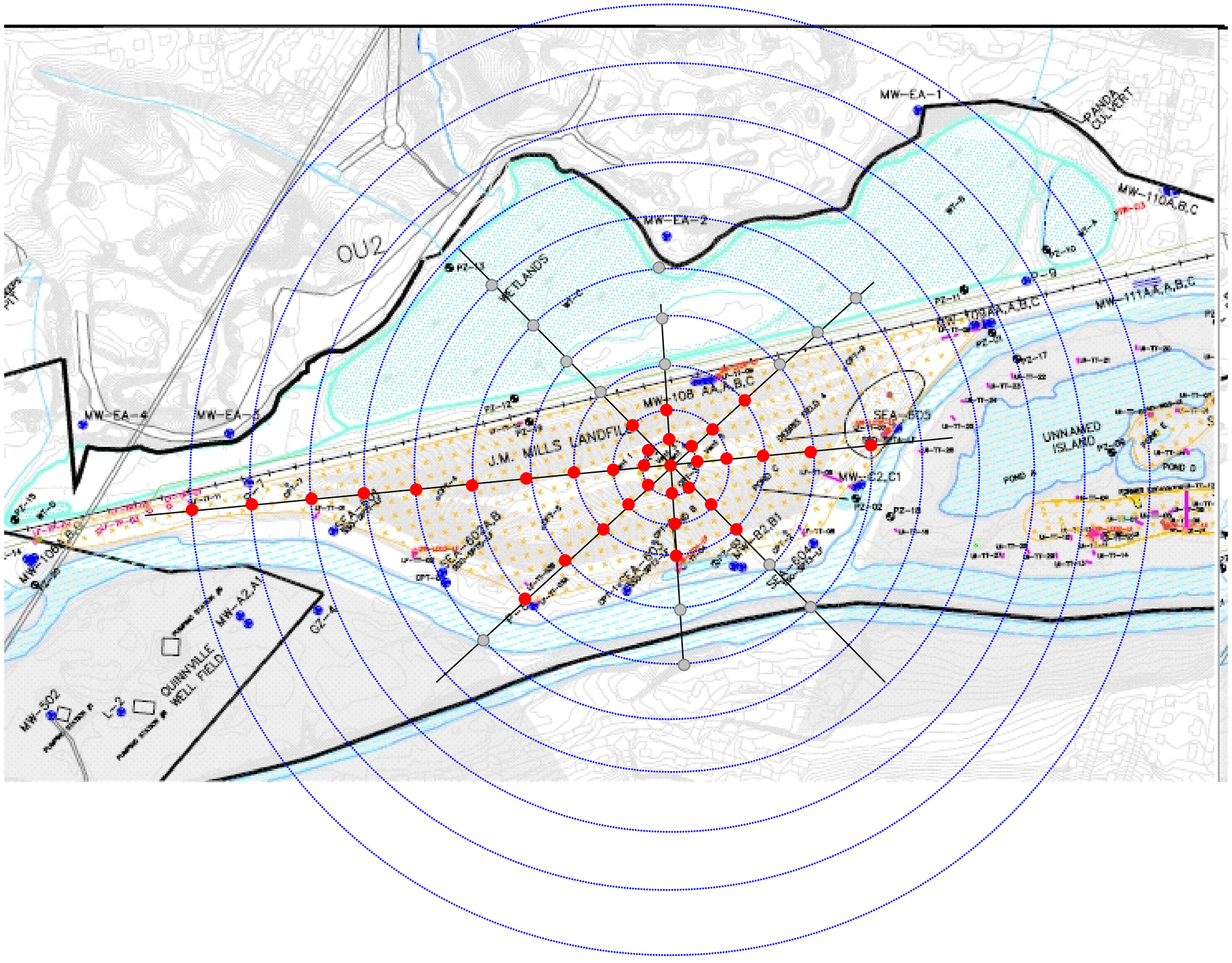
		Grab Sample Analytical Data				Estimated Emission Rates				
Location ID:		AR-001-LF	AR-001-LF	AR-002-LF	AR-003-LF	AR-001-LF	AR-001-LF	AR-002-LF	AR-003-LF	
Sample ID:		AR-001-LF	AR-FD1	AR-002-LF	AR-003-LF	AR-001-LF	AR-FD1	AR-002-LF	AR-003-LF	Total
	Units	ug/m^3	ug/m^3	ug/m^3	ug/m^3	g/sec	g/sec	g/sec	g/sec	g/sec
Air Parameters - VOCs (TO-15)										
1,1-Dichloroethane	ug/m^3	0.20 U	0.20 U	9.70 J	0.20 U	7.6E-10	7.6E-10	7.4E-08	7.6E-10	7.6E-08
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m^3	1.33 J	0.63 U	174.85	0.63 U	1.0E-08	2.4E-09	1.3E-06	2.4E-09	1.3E-06
1,2-Dichlorobenzene	ug/m^3	0.43 U	0.43 U	122.70	0.58 J	1.6E-09	1.6E-09	9.3E-07	4.4E-09	9.4E-07
1,3,5-Trimethylbenzene	ug/m^3	3.48	1.67 J	16.69 J	1.23 J	2.6E-08	1.3E-08	1.3E-07	9.3E-09	1.8E-07
1,3-Dichlorobenzene	ug/m^3	0.49 U	0.49 U	251.53	0.80 J	1.9E-09	1.9E-09	1.9E-06	6.1E-09	1.9E-06
1,4-Dichlorobenzene	ug/m^3	0.98 J	0.45 J	674.85	5.09	7.5E-09	3.5E-09	5.1E-06	3.9E-08	5.2E-06
4-Ethyltoluene	ug/m^3	6.87	3.78	103.07	2.06	5.2E-08	2.9E-08	7.8E-07	1.6E-08	8.8E-07
Benzene	ug/m^3	1.56	0.80	1722.70	1.08	1.2E-08	6.1E-09	1.3E-05	8.2E-09	1.3E-05
Benzene, 1,2,4-trimethyl-	ug/m^3	8.34	4.71	112.88	3.09	6.3E-08	3.6E-08	8.6E-07	2.3E-08	9.8E-07
Carbon tetrachloride	ug/m^3	0.61 J	0.61 J	6.13 U	0.67 J	4.7E-09	4.7E-09	2.3E-08	5.1E-09	3.8E-08
Chlorobenzene	ug/m^3	1.30	0.43 J	3959.10	2.61	9.9E-09	3.3E-09	3.0E-05	2.0E-08	3.0E-05
Chloroethane	ug/m^3	0.37 U	0.37 U	29.24	0.37 U	1.4E-09	1.4E-09	2.2E-07	1.4E-09	2.3E-07
cis-1,2-Dichloroethene	ug/m^3	0.20 U	0.20 U	21.03	0.20 U	7.5E-10	7.5E-10	1.6E-07	7.5E-10	1.6E-07
Dichlorodifluoromethane	ug/m^3	3.24	2.90	33.37	3.04	2.5E-08	2.2E-08	2.5E-07	2.3E-08	3.2E-07
Ethylbenzene	ug/m^3	3.64	3.28	1304.70	12.15	2.8E-08	2.5E-08	9.9E-06	9.2E-08	1.0E-05
Methylene chloride	ug/m^3	0.38 J	0.38 J	5.56 U	6.26	2.9E-09	2.9E-09	2.1E-08	4.8E-08	7.5E-08
Toluene	ug/m^3	3.31	3.09	71.49	2.26	2.5E-08	2.3E-08	5.4E-07	1.7E-08	6.1E-07
trans-1,2-Dichloroethene	ug/m^3	0.28 U	0.28 U	22.61	0.28 U	1.1E-09	1.1E-09	1.7E-07	1.1E-09	1.8E-07
Trichloroethene	ug/m^3	23.39	20.20	10.10 J	1.38	1.8E-07	1.5E-07	7.7E-08	1.1E-08	4.2E-07
Vinyl Chloride	ug/m^3	0.44 J	0.21 J	211.29	0.15 U	3.3E-09	1.6E-09	1.6E-06	5.9E-10	1.6E-06
Xylene (Total)	ug/m^3	62.99	29.69	629.86	8.10	4.8E-07	2.3E-07	4.8E-06	6.2E-08	5.6E-06

Notes:
ug/m3 = micrograms per cubic meter
g/sec = grams per second
Emission rates for each vent location estimated using a landfill gas flow rate of 0.0076 cubic meters per second (m^3/sec).

Table 3
RME and CTE Ambient Air Concentration Estimates
Peterson Puritan Superfund Site

		Distance from Point Emission Source (Vents)														RME	CTE
COPC		1	50	100	150	200	250	300	350	400	450	500	550	600	650		
1,1-Dichloroethane	ug/m^3	1.6E-02	3.1E-03	1.3E-03	8.3E-04	5.7E-04	4.2E-04	3.2E-04	2.6E-04	2.1E-04	1.7E-04	1.5E-04	1.3E-04	1.1E-04	9.7E-05	4.2E-03	2.9E-03
Benzene	ug/m^3	2.8E+00	5.3E-01	2.3E-01	1.4E-01	9.9E-02	7.3E-02	5.6E-02	4.4E-02	3.6E-02	3.0E-02	2.5E-02	2.2E-02	1.9E-02	1.7E-02	7.2E-01	5.0E-01
Carbon Tetrachloride	ug/m^3	8.1E-03	1.5E-03	6.7E-04	4.2E-04	2.9E-04	2.1E-04	1.6E-04	1.3E-04	1.1E-04	8.8E-05	7.4E-05	6.4E-05	5.6E-05	4.9E-05	2.1E-03	1.5E-03
Chlorobenzene	ug/m^3	6.4E+00	1.2E+00	5.3E-01	3.3E-01	2.3E-01	1.7E-01	1.3E-01	1.0E-01	8.3E-02	6.9E-02	5.9E-02	5.0E-02	4.4E-02	3.9E-02	1.7E+00	1.2E+00
Chloroethane	ug/m^3	4.9E-02	9.4E-03	4.1E-03	2.5E-03	1.7E-03	1.3E-03	9.9E-04	7.8E-04	6.4E-04	5.3E-04	4.5E-04	3.9E-04	3.4E-04	3.0E-04	1.3E-02	8.9E-03
1,2-Dichlorobenzene	ug/m^3	2.0E-01	3.8E-02	1.7E-02	1.0E-02	7.1E-03	5.3E-03	4.0E-03	3.2E-03	2.6E-03	2.2E-03	1.8E-03	1.6E-03	1.4E-03	1.2E-03	5.2E-02	3.6E-02
1,3-Dichlorobenzene	ug/m^3	4.1E-01	7.7E-02	3.4E-02	2.1E-02	1.4E-02	1.1E-02	8.2E-03	6.5E-03	5.3E-03	4.4E-03	3.7E-03	3.2E-03	2.8E-03	2.4E-03	1.0E-01	7.3E-02
1,4-Dichlorobenzene	ug/m^3	1.1E+00	2.1E-01	9.2E-02	5.7E-02	3.9E-02	2.9E-02	2.2E-02	1.8E-02	1.4E-02	1.2E-02	1.0E-02	8.7E-03	7.6E-03	6.7E-03	2.9E-01	2.0E-01
Dichlorodifluoromethane	ug/m^3	6.8E-02	1.3E-02	5.7E-03	3.5E-03	2.4E-03	1.8E-03	1.4E-03	1.1E-03	8.9E-04	7.4E-04	6.3E-04	5.4E-04	4.7E-04	4.1E-04	1.8E-02	1.2E-02
cis-1,2-Dichloroethene	ug/m^3	3.4E-02	6.5E-03	2.8E-03	1.8E-03	1.2E-03	8.9E-04	6.9E-04	5.5E-04	4.4E-04	3.7E-04	3.1E-04	2.7E-04	2.3E-04	2.1E-04	8.8E-03	6.2E-03
trans-1,2-Dichloroethene	ug/m^3	3.8E-02	7.3E-03	3.2E-03	2.0E-03	1.4E-03	1.0E-03	7.7E-04	6.1E-04	5.0E-04	4.2E-04	3.5E-04	3.0E-04	2.6E-04	2.3E-04	9.9E-03	7.0E-03
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m^3	2.8E-01	5.3E-02	2.3E-02	1.4E-02	9.9E-03	7.3E-03	5.6E-03	4.4E-03	3.6E-03	3.0E-03	2.5E-03	2.2E-03	1.9E-03	1.7E-03	7.2E-02	5.0E-02
Ethylbenzene	ug/m^3	2.1E+00	4.1E-01	1.8E-01	1.1E-01	7.6E-02	5.6E-02	4.3E-02	3.4E-02	2.8E-02	2.3E-02	2.0E-02	1.7E-02	1.5E-02	1.3E-02	5.5E-01	3.9E-01
4-Ethyltoluene	ug/m^3	1.9E-01	3.6E-02	1.6E-02	9.7E-03	6.7E-03	4.9E-03	3.8E-03	3.0E-03	2.4E-03	2.0E-03	1.7E-03	1.5E-03	1.3E-03	1.1E-03	4.9E-02	3.4E-02
Methylene Chloride	ug/m^3	1.6E-02	3.1E-03	1.3E-03	8.2E-04	5.7E-04	4.2E-04	3.2E-04	2.6E-04	2.1E-04	1.7E-04	1.5E-04	1.3E-04	1.1E-04	9.6E-05	4.1E-03	2.9E-03
Toluene	ug/m^3	1.3E-01	2.5E-02	1.1E-02	6.7E-03	4.6E-03	3.4E-03	2.6E-03	2.1E-03	1.7E-03	1.4E-03	1.2E-03	1.0E-03	8.9E-04	7.8E-04	3.4E-02	2.4E-02
Trichloroethene	ug/m^3	9.0E-02	1.7E-02	7.4E-03	4.6E-03	3.2E-03	2.3E-03	1.8E-03	1.4E-03	1.2E-03	9.7E-04	8.2E-04	7.1E-04	6.1E-04	5.4E-04	2.3E-02	1.6E-02
1,2,4-Trimethylbenzene	ug/m^3	2.1E-01	4.0E-02	1.7E-02	1.1E-02	7.4E-03	5.5E-03	4.2E-03	3.3E-03	2.7E-03	2.3E-03	1.9E-03	1.6E-03	1.4E-03	1.3E-03	5.4E-02	3.8E-02
1,3,5-Trimethylbenzene	ug/m^3	3.8E-02	7.3E-03	3.2E-03	2.0E-03	1.4E-03	1.0E-03	7.7E-04	6.1E-04	5.0E-04	4.2E-04	3.5E-04	3.0E-04	2.6E-04	2.3E-04	9.9E-03	7.0E-03
Vinyl Chloride	ug/m^3	3.4E-01	6.5E-02	2.8E-02	1.8E-02	1.2E-02	8.9E-03	6.9E-03	5.5E-03	4.4E-03	3.7E-03	3.1E-03	2.7E-03	2.3E-03	2.1E-03	8.8E-02	6.2E-02
Xylene	ug/m^3	1.2E+00	2.3E-01	9.9E-02	6.2E-02	4.3E-02	3.1E-02	2.4E-02	1.9E-02	1.6E-02	1.3E-02	1.1E-02	9.4E-03	8.2E-03	7.2E-03	3.1E-01	2.2E-01

Notes:
COPC = constituent of potential concern
RME = reasonable maximum exposure
CTE = central tendency exposure
RME concentration estimated by averaging concentrations for concentric ring points within the area of the landfill. See Figure 1 for locations.
CTE estimated by multiplying RME concentration by factor of 0.7 to convert to average of 8-hour maximum concentrations.



Grey locations excluded from average.
Red locations included in average.

Modeled locations are approximate.

PETERSON PURITAN OU2 SUPERFUND SITE
CUMBERLAND AND LINCOLN, RHODE ISLAND

BASELINE HUMAN HEALTH RISK ASSESSMENT

SCREEN3 AIR MODELING LOCATIONS USED IN CALCULATION OF EPCs

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
1

6/12/07 SYR-85-KLS
37902300/37902G01.CDR

Attachment A

```
05/15/07

15:35:11
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 4-Ethyltoluene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .880000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:35:11
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 4-Ethyltoluene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .880000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .1878        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .3586E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1556E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .9671E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .6680E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .4917E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .3778E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .3000E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .2445E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .2035E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1723E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1480E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1287E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1130E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .1878            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:32:57
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2-Dichlorobenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .940000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:32:57
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2-Dichlorobenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .940000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .2007        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .3830E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1662E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1033E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .7135E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .5252E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .4036E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .3205E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .2612E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .2174E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1841E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1581E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1375E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1207E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .2007            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:31:46
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2-Dichloro-1,1,2,2-tetrafluoroethane

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .130000E-05
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:31:46
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2-Dichloro-1,1,2,2-tetrafluoroethane
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .130000E-05
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .2775        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .5297E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .2298E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1429E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .9868E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .7263E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .5581E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .4432E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .3613E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .3007E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .2546E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .2186E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1901E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1670E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .2775            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:34:12
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,3-Dichlorobenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .190000E-05
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:34:12
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,3-Dichlorobenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .190000E-05
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .4056        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .7742E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .3359E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .2088E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1442E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1062E-01    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .8158E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .6478E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .5280E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .4394E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .3720E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .3196E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .2778E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2441E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .4056            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:34:44
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,4-Dichlorobenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .520000E-05
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:34:44
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,4-Dichlorobenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .520000E-05
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   1.110        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .2119        6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .9193E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .5715E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .3947E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .2905E-01    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .2233E-01    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1773E-01    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .1445E-01    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .1203E-01    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1018E-01    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .8746E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .7604E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .6680E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      1.110            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:36:03
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2,4-Trimethylbenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .980000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:36:03
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,2,4-Trimethylbenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .980000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .2092        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .3993E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1733E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1077E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .7439E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .5476E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .4208E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .3341E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .2723E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .2266E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1919E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1648E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1433E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1259E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .2092            1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

```
05/15/07

15:33:27
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,3,5-Trimethylbenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .180000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:33:27
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 1,3,5-Trimethylbenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .180000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .3842E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .7335E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .3182E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1978E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1366E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1006E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .7728E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .6137E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .5002E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .4163E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .3525E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .3027E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .2632E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2312E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .3842E-01        1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:35:36
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Benzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .130000E-04
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:35:36
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Benzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .130000E-04
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   2.775        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .5297        6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .2298        6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1429        6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .9868E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .7263E-01    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .5581E-01    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .4432E-01    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .3613E-01    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .3007E-01    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .2546E-01    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .2186E-01    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1901E-01    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1670E-01    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      2.775            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:36:32
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Carbon Tetrachloride

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .380000E-07
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:36:32
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Carbon Tetrachloride
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .380000E-07
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .8112E-02    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .1548E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .6718E-03    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .4176E-03    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .2885E-03    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .2123E-03    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .1632E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1296E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .1056E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .8788E-04    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .7441E-04    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .6391E-04    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .5557E-04    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .4881E-04    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .8112E-02        1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

```
05/15/07

15:37:04
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Chlorobenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .300000E-04
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:37:04
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Chlorobenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .300000E-04
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   6.404        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   1.222        6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .5304        6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .3297        6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .2277        6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1676        6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .1288        6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1023        6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .8337E-01    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .6938E-01    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .5874E-01    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .5046E-01    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .4387E-01    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .3854E-01    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      6.404            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:37:29
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Chloroethane

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .230000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:37:29
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Chloroethane
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .230000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .4910E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .9372E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .4066E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .2528E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1746E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1285E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .9875E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .7842E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .6391E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .5319E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .4504E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .3868E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .3363E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2955E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .4910E-01        1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:39:00
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 cis-1,2-Dichloroethene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .160000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:39:00
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 cis-1,2-Dichloroethene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .160000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .3415E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .6520E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .2829E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1758E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1215E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .8940E-03    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .6870E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .5455E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .4446E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .3700E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .3133E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .2691E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .2340E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2055E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .3415E-01        1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:39:35
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Dichlorodifluoromethane

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .320000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:39:35
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Dichlorodifluoromethane
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .320000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .6831E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .1304E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .5657E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .3517E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .2429E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1788E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .1374E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1091E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .8892E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .7401E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .6266E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .5382E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .4679E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .4111E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .6831E-01        1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

```
05/15/07

15:40:03
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Ethylbenzene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .100000E-04
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:40:03
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Ethylbenzene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .100000E-04
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   2.135        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .4075        6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1768        6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1099        6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .7591E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .5587E-01    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .4293E-01    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .3410E-01    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .2779E-01    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .2313E-01    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1958E-01    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1682E-01    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1462E-01    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .1285E-01    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      2.135            1.        0.


****************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****************************************************
```

```
05/15/07

15:40:29
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Methylene Chloride

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .750000E-07
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:40:29
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Methylene Chloride
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .750000E-07
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .1601E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .3056E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1326E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .8243E-03    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .5693E-03    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .4190E-03    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .3220E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .2557E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .2084E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .1735E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1469E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1261E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .1097E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .9634E-04    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .1601E-01        1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

```
05/15/07

15:41:43
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Trichloroethene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .420000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:41:43
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Trichloroethene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .420000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .8965E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .1711E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .7425E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .4616E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .3188E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .2347E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .1803E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1432E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .1167E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .9713E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .8224E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .7064E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .6141E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .5395E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .8965E-01        1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

```
05/15/07

15:40:51
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Toluene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .610000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:40:51
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Toluene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .610000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .1302        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .2486E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .1078E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .6704E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .4630E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .3408E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .2619E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .2080E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .1695E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .1411E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1194E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .1026E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .8920E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .7836E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .1302            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:41:17
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 trans-1,2-Dichloroethene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .180000E-06
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:41:17
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 trans-1,2-Dichloroethene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .180000E-06
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .3842E-01    6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .7335E-02    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .3182E-02    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1978E-02    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1366E-02    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .1006E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .7728E-03    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .6137E-03    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .5002E-03    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .4163E-03    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .3525E-03    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .3027E-03    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .2632E-03    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2312E-03    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .3842E-01        1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:42:06
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Vinyl Chloride

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .160000E-05
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:42:06
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Vinyl Chloride
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .160000E-05
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   .3415        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .6520E-01    6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .2829E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .1758E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .1215E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .8940E-02    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .6870E-02    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .5455E-02    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .4446E-02    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .3700E-02    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .3133E-02    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .2691E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .2340E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .2055E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      .3415            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

```
05/15/07

15:42:40
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Xylene

 COMPLEX TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .560000E-05
    STACK HT (M)           =       1.0000
    STACK DIAMETER (M)     =        .1016
    STACK VELOCITY (M/S)   =        .9868
    STACK GAS TEMP (K)     =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =        .0000
    URBAN/RURAL OPTION     =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.


 FINAL STABLE PLUME HEIGHT (M) =    2.1
 DISTANCE TO FINAL RISE (M)    =  151.3

                          *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
  TERR         MAX 24-HR              PLUME HT             PLUME HT
   HT    DIST    CONC        CONC    ABOVE STK    CONC    ABOVE STK
U10M USTK
  (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC
(M/S)
 ----- ------- ----------  ----------  ------   ----------  ------  -- --
-- ----
    3.      3.  .0000       .0000          .9    .0000          .0   0
.0   .0
    6.      6.  .0000       .0000          .9    .0000          .0   0
.0   .0
    9.      9.  .0000       .0000         1.0    .0000          .0   0
.0   .0

05/15/07

15:42:40
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Xylene
```

```
 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      .560000E-05
    STACK HEIGHT (M)       =       1.0000
    STK INSIDE DIAM (M)    =        .1016
    STK EXIT VELOCITY (M/S)=        .9868
    STK GAS EXIT TEMP (K)  =     298.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =       1.7500
    URBAN/RURAL OPTION     =        RURAL
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   .80000000E-02 (M**3/S)

 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
      1.   1.195        6     4.0    4.0 10000.0    1.91     .06     .06
NO
     50.   .2282        6     1.0    1.0 10000.0    2.74    2.19    1.40
NO
    100.   .9901E-01    6     1.0    1.0 10000.0    2.74    4.10    2.38
NO
    150.   .6154E-01    6     1.0    1.0 10000.0    2.74    5.95    3.28
NO
    200.   .4251E-01    6     1.0    1.0 10000.0    2.74    7.75    4.13
NO
    250.   .3129E-01    6     1.0    1.0 10000.0    2.74    9.51    4.90
NO
    300.   .2404E-01    6     1.0    1.0 10000.0    2.74   11.25    5.65
NO
    350.   .1909E-01    6     1.0    1.0 10000.0    2.74   12.96    6.37
NO
    400.   .1556E-01    6     1.0    1.0 10000.0    2.74   14.65    7.07
NO
```

```
    450.   .1295E-01    6     1.0    1.0 10000.0    2.74   16.32    7.75
NO
    500.   .1097E-01    6     1.0    1.0 10000.0    2.74   17.97    8.41
NO
    550.   .9419E-02    6     1.0    1.0 10000.0    2.74   19.61    9.06
NO
    600.   .8189E-02    6     1.0    1.0 10000.0    2.74   21.24    9.70
NO
    650.   .7194E-02    6     1.0    1.0 10000.0    2.74   22.86   10.33
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
 SIMPLE TERRAIN      1.195            1.        0.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
```

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From:
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Date:
February 7, 2007

ARCADIS BBL Project No.:
37902.300

Subject:
Peterson Puritan Risk Assessments: Statistical Evaluation of Fish Tissue PCB Data for OU2 and Upstream/Background Areas

---

The following briefly describes the fish sampling program, and presents the methodology and results of statistical evaluations (i.e., analysis of variance) conducted for the fish tissue PCB homolog data collected as part of the Remedial Investigation. The objective of the evaluation was to determine if there are statistically significant differences in fish tissue PCB homolog concentrations for fillet and whole-body fish samples collected from various portions of the Blackstone River, OU2 ponds and a background/reference area pond.

Fish Sampling:

Fish fillet samples of largemouth bass, white sucker, bluegill and pumpkinseed were collected to evaluate potential human health exposures. Fillet samples were intended to represent edible-size fish that could be consumed by local anglers. Composite whole-body fish samples of common shiner, golden shiner, bluegill and pumpkinseed were collected to evaluate potential ecological exposures. Additionally, whole-body PCB concentrations for largemouth bass and white suckers were calculated by summing concentrations for fillet and remaining carcass samples.

Fish data were collected from the following locations (in order from upstream to downstream) (see Figure 1):

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P-6: Isolated background pond located north of site (OU2)

BR-1: Stretch of Blackstone River located upstream of Ashton Dam

BR-2: Stretch of Blackstone River located downstream of Ashton Dam

BR-3: Stretch of Blackstone River located adjacent to the site (OU2); terminus is Pratt Dam

P-1 (Pond A): Pond located within the Unnamed Island within OU2

P-2 (Pond F): Pond located within OU2, adjacent to Pratt Dam

The following table presents a summary of the fish species and sample types collected from the Blackstone River and OU2 ponds, as well as the background pond.

Fish Species	Sample Type	Sampling Location	Sample Size
Largemouth bass	Fillet	BR-2	8
		BR-3	8
		P-1	8
		P-6	8
	Whole-body[a]	BR-2	8
		BR-3	8
		P-1	8
		P-6	8
White sucker	Fillet	BR-1	8
		BR-2	8
		BR-3	8
		P-1	8
		P-2	8
	Whole-body[a]	BR-1	8
		BR-2	8
		BR-3	8
		P-1	8
		P-2	8
Bluegill	Fillet	BR-1	5
		P-2	7
	Whole-body[a]	BR-1	5
		P-2	7
	Whole-body composite[b]	P-1	8
		P-6	8
Pumpkinseed	Fillet	BR-1	3
		P-2	1
	Whole-body[a]	BR-1	3
		P-2	1

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Fish Species	Sample Type	Sampling Location	Sample Size
Common shiner	Whole-body composite[b]	BR-1 BR-2 BR-3	8 8 8
Golden shiner	Whole-body composite[b]	P-2	8

Notes:

[a] Whole-body PCB concentrations were calculated by summing fillet and remaining carcass concentrations.

[b] Represents whole-body composite samples.

Methodology:

The statistical evaluation of fish PCB homolog data consisted of Analysis of Variance (ANOVA), which is a statistical method for making simultaneous comparisons between two or more data sets (e.g., groups, populations) to determine if there is a statistically significant difference between them. An analytical software package (Statistix 7) was used to run the ANOVAs. Prior to analysis, the fish data were separated into species and sample type (i.e., fillet, whole-body), and in some instances, size ranges if sufficient data were available. Subsequently, the data sets were tested for normality to determine if they follow a certain distribution (i.e., normal, lognormal, non-parametric).

A parametric One-Way Analysis of Variance (AOV) was conducted for data sets that followed a normal or lognormal distribution. The output of the One-Way AOV is a p-value, which indicates whether the null hypothesis (i.e., concentrations are not significantly different between groups) should be accepted or rejected. Following the One-Way AOV, a Bonferroni Comparison of Means (alpha = 0.05) was used to compare the means of the different groups. The output of the Comparison of Means is a tabular presentation of homogeneous populations.

For non-parametric data sets (i.e, those that don't follow a certain pattern), the Kruskal-Wallis One-Way AOV procedure was used, which relies on a ranking system to determine if there are significant differences in central values (i.e., medians) between groups. Like the One-Way AOV, the output of the Kruskal-Wallis One-Way AOV is a p-value, which indicates whether the null hypothesis (i.e., concentrations are not significantly different between groups) should be accepted or rejected. Following the Kruskal-Wallis One-Way AOV, a Comparison of Mean Ranks (alpha = 0.05) was used to compare the mean ranks of the different groups. Like the Bonferroni Comparison of Means, the output of the Comparison of Mean Ranks is a tabular presentation of homogeneous populations.

Analyses were performed on both lipid-normalized and un-normalized PCB homolog fish tissue data.

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Results for Fish Fillets:

Largemouth Bass

- There are no statistically significant differences in fish tissue PCB concentrations in largemouth bass (all sizes) collected from BR-2, BR-3 and P-1. However, fish tissue PCB concentrations in largemouth bass from P-6 (background pond) are significantly lower compared to concentrations observed in largemouth bass from the Blackstone River with the following exception: lipid-normalized PCB concentrations in bass from P-6 are not significantly lower than lipid-normalized PCB concentrations in bass from BR-2.

- There are no statistically significant differences between largemouth bass (>30 cm in length) PCB concentrations collected from BR-3 and P-1. However, PCB concentrations in largemouth bass of this same size range collected from P-6 are significantly lower than those PCB concentrations in bass from BR-3 and P-1. Lipid-normalized PCB data displayed the same results.

Bluegill/Pumpkinseed

- There are no statistically significant differences in fish tissue PCB concentrations in bluegill and pumpkinseed (all sizes) collected from BR-1 and P-2. However, the evaluation of lipid-normalized PCB data for these species showed a significant difference between BR-1 and P-2.

White Sucker

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (all sizes) collected from BR-2, BR-3, P-1 and P-2. Similarly, white sucker PCB concentrations from BR-1, P-1 and P-2 are not significantly different. Evaluation of the lipid-normalized PCB data showed no statistically significant differences in white sucker concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations from BR-1, BR-3, P-1 and P-2 are not significantly different.

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (>35 cm in length) collected from BR-1, BR-2 and BR-3. Lipid-normalized PCB data displayed the same results.

The following tables summarize the above results for fish fillet PCB concentrations (un-normalized and lipid-normalized data). Populations with “I” in the same column are not significantly different from one another, while populations with “I” in separate columns are significantly different from one another.

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Total PCB Homologs: Fish Fillets				
Species	Size	Location	Homogeneous Populations (1)	
Largemouth bass	All (3)	BR-2	I	
		BR-3	I	
		P-1	I	
		P-6		I
	>30 cm (3)	BR-3	I	
		P-1	I	
		P-6		I
Bluegill/Pumpkinseed	All (2)	BR-1	I	
		P-2	I	
White sucker	All (3)	BR-1		I
		BR-2	I	
		BR-3	I	
		P-1	I	I
		P-2	I	I
	>35 cm (3)	BR-1	I	
		BR-2	I	
		BR-3	I	

Total PCB Homologs (Lipid-Normalized): Fish Fillets				
Species	Size	Location	Homogeneous Populations (1)	
Largemouth bass	All (3)	BR-2	I	I
		BR-3	I	
		P-1	I	
		P-6		I
	>30 cm (3)	BR-3	I	
		P-1	I	
		P-6		I
Bluegill/Pumpkinseed	All (2)	BR-1	I	
		P-2		I
White sucker	All(2)	BR-1		I
		BR-2	I	
		BR-3	I	I
		P-1		I
		P-2	I	I
	>35 cm(2)	BR-1	I	
		BR-2	I	
		BR-3	I	

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Notes:
(1) Based on comparison of mean ranks using Statistix 7.0. Populations with "I" in the same column are not significantly different from one another. Conversely, populations with "I" in different columns are significantly different from one another. Results should be interpreted on a species-specific basis.

(2) Sample populations for the white sucker locations were shown to be either normal- or lognormally-distributed. One way Analysis of Variance (AOV) methods were used to test differences in sample populations. Comparison of means were performed using the Bonferroni test methodology for an alpha value equal to 0.05.

(3) Sample population comparisons were performed using Kruskal-Wallis AOV non-parametric test; based on statistical differences (at alpha = 0.05) of the mean ranks.

Results for Whole-Body Fish:

Bluegill/Pumpkinseed

- There are no statistically significant differences in fish tissue PCB concentrations in bluegill and pumpkinseed (all sizes) collected from BR-1 and P-2. PCB concentrations in bluegill and pumpkinseed from P-1 and P-6 are significantly different from one another, and are also significantly different compared to BR-1 and P-2. The evaluation of lipid-normalized PCB data for these species showed a significant difference between all groups (i.e., BR-1, P-1, P-2 and P-6).

Common Shiner/Golden Shiner

- There are no statistically significant differences in fish tissue PCB concentrations in shiners from BR-1, BR-2 and BR-3. Likewise, there are no statistically significant differences in PCB concentrations in these species collected from BR-3 and P-2. The evaluation of lipid-normalized PCB concentrations showed no statistically significant differences in fish tissue PCB concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations in fish from BR-1, BR-2, and P-2 are not significantly different from one another.

Largemouth Bass

- There are no statistically significant differences in fish tissue PCB concentrations in largemouth bass (all sizes) collected from BR-2, BR-3 and P-1. Likewise, there are no statistically significant differences in fish tissue PCB concentrations from P-1 and P-6. The evaluation of lipid-normalized PCB concentrations in fish showed no statistically significant differences between BR-2, BR-3 and P-1; however, lipid-normalized PCB concentrations in fish from P-6 were significantly lower compared to BR-2, BR-3 and P-1.

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- There are no statistically significant differences between largemouth bass (>30 cm in length) PCB concentrations collected from BR-3 and P-1. However, PCB concentrations in largemouth bass of this same size range collected from P-6 are significantly lower than PCB concentrations in bass from BR-3 and P-1. Lipid-normalized PCB data displayed the same results.

White Sucker

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (all sizes) collected from BR-2 and BR-3. Similarly, white sucker PCB concentrations from BR-3 and P-2 are not significantly different. Also, PCB concentrations in fish from BR-1, P-1 and P-2 are not significantly different. Evaluation of the lipid-normalized PCB data showed no statistically significant differences in white sucker concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations in fish from BR-1, BR-3, P-1 and P-2 are not significantly different.

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (>35 cm in length) collected from BR-1 and BR-3; PCB concentrations in fish from BR-2 were significantly different compared to those concentrations observed in fish from BR-1 and BR-3. However, lipid-normalized PCB concentrations showed there are no statistically significant differences in fish from BR-1, BR-2 and BR-3.

The following tables summarize the above results for PCB concentrations in whole-body fish (un-normalized and lipid-normalized data). Populations with “I” in the same column are not significantly different from one another, while populations with “I” in separate columns are significantly different from one another.

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Total PCB Homologs: Whole-Body Fish					
Species	Size	Location	Homogeneous Populations (1)		
Bluegill/Pumpkinseed	All (2)	BR-1	I		
		P-1		I	
		P-2	I		
		P-6			I
Common/Golden Shiner	All (3)	BR-1	I		
		BR-2	I		
		BR-3	I	I	
		P-2		I	
Largemouth bass	All (3)	BR-2	I		
		BR-3	I		
		P-1	I	I	
		P-6		I	
	>30 cm (3)	BR-3	I		
		P-1	I		
		P-6		I	
White sucker	All (2)	BR-1			I
		BR-2	I		
		BR-3	I	I	
		P-1			I
		P-2		I	I
	>35 cm (2)	BR-1		I	
		BR-2	I		
		BR-3		I	

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Total PCB Homologs (Lipid-Normalized): Whole-Body Fish					
Species	Size	Location	Homogeneous Populations [1]		
Bluegill/Pumpkinseed	All [2]	BR-1	I		
		P-1		I	
		P-2			I
		P-6			I
Common/Golden Shiner	All [2]	BR-1		I	
		BR-2	I	I	
		BR-3	I		
		P-2	I	I	
Largemouth bass	All [3]	BR-2	I		
		BR-3	I		
		P-1	I		
		P-6		I	
	>30 cm [3]	BR-3	I		
		P-1	I		
		P-6		I	
White sucker	All [3]	BR-1		I	
		BR-2	I		
		BR-3	I	I	
		P-1		I	
		P-2	I	I	
	>35 cm [2]	BR-1	I		
		BR-2	I		
		BR-3	I		

Notes:

(1) Based on comparison of mean ranks using Statistix 7.0. Populations with "I" in the same column are not significantly different from one another. Conversely, populations with "I" in different columns are significantly different from one another. Results should be interpreted on a species-specific basis.

(2) Sample populations were shown to be either normal- or lognormally-distributed. One way Analysis of Variance (AOV) methods were used to test differences in sample populations. Comparison of means were performed using the Bonferroni test methodology for an alpha value equal to 0.05.

(3) Sample population comparisons were performed using the Kruskal-Wallis AOV non-parametric test; based on statistical differences (at alpha = 0.05) of the mean ranks.

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Summary:

In general, PCB homolog concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different compared to PCB homolog concentrations observed in fish collected from upstream locations within the Blackstone River.

1.0 Introduction

As requested by the United States Environmental Protection Agency (USEPA), this technical memorandum presents an evaluation of potential risks associated with exposure of human receptors to lead in site-related media at the Peterson Puritan Operable Unit 2 (OU2) Superfund Site located in Cumberland and Lincoln, Rhode Island. This technical memorandum is included as Appendix Z to the *Baseline Human Health Risk Assessment* (HHRA) that was submitted for the site in February 2009 (ARCADIS, 2009).

Lead was identified as a constituent of potential concern (COPC) in the HHRA (ARCADIS, 2009) for the following subareas and media:

- Site-wide surface soil (excluding Nunes Parcel and wetlands)
- Nunes Parcel surface soil
- Nunes Parcel subsurface soil
- Site-wide sediments
- Wetland sediments
- Site-wide groundwater
- Leachate
- Fish (fillet) tissue

As requested by the USEPA, the lead evaluation consists of a separate evaluation for each subarea of the site and each exposure scenario previously evaluated in the HHRA (ARCADIS, 2009). Although lead was identified as a COPC in leachate, this exposure pathway is not quantitatively evaluated because uncertainty in assigning a dermal absorption fraction for lead precludes quantification of potential risks associated with the dermal exposure route (USEPA, 2003a; 2004; 2007).

2.0 Methodology

Risks associated with exposure to lead in various site-related media were evaluated using USEPA's lead models – the Adult Lead Model (ALM) and the IEUBK Model for Lead in Children (USEPA, 1994a; 2003a). Specifically, the ALM was used to evaluate potential lead risks for non-residential scenarios, and the IEUBK Model was used to evaluate potential lead risks for residential scenarios (i.e., children ages 0 to 84 months of age). Parameter values used in the ALM and IEUBK are largely based on the USEPA's recommended default values and were previously approved by the USEPA on May 13, 2008. The dose equations and modeling approaches are consistent with USEPA guidance (1994a; 2003a; 2007).

Incidental ingestion of lead in soil is generally the primary exposure pathway of concern for risk assessments. However, the models can also quantify cumulative doses and risk attributed to other sources of exposure, such as drinking water, diet, lead-based paint, and air emissions. Because lead is ubiquitous in the environment, predicted blood lead levels (PbB) associated with exposure to site-related sources of lead are added to an assumed age-specific baseline PbB that reflects exposure to non-site-related sources of lead. Forty-one different exposure scenarios (current and future) were evaluated using the ALM, including exposure of recreational users (adults and older children, age 6 to 12 years), commercial workers, construction workers, adolescent trespassers (age 9 to 18 years), and adult anglers. Four exposure scenarios were evaluated using the IEUBK Model: exposure of residential young children to site-wide groundwater, exposure of young children to fish tissue, exposure of residential young children to soil and groundwater at Nunes

Parcel, and exposure of residential young children to soil and groundwater at the Rhode Island Department of Environmental Management (RIDEM) Soil Removal Area.

In both the ALM and IEUBK Model, potential health risks associated with lead exposure are evaluated by comparing the estimated PbB to the target PbB of 10 micrograms per deciliter (µg/dL) (Centers for Disease Control [CDC], 1991). The target PbB is based on potentially adverse neurological effects in children (CDC, 1991). Therefore, lead risk is evaluated based on the probability that PbB among a receptor population will exceed 10 µg/dL. This is sometimes referred to as the "P10 statistic." Consistent with USEPA guidance (USEPA, 1994a; 2003b), this lead evaluation focuses on determining if P10 equals or exceeds 5 percent, which is equivalent to calculating the 95th percentile of the probability distribution of PbB among a receptor population.

The USEPA employs a simplifying assumption in both models to estimate the probability distribution of PbBs. Each model first generates a point estimate of the central tendency of the PbB distribution, and it is assumed that the value represents the geometric mean PbB among a receptor population that is exposed to the same levels of lead in the environment. Epidemiological data on PbBs among various populations suggests that the distribution is roughly lognormal in shape (USEPA, 1994b). The USEPA applies the assumption of lognormality to both models using the following equation:

$$PbB_{0.95} = PbB_{GM} \times GSD^{1.645}$$

$PbB_{0.95}$ = 95th percentile of the distribution of PbBs (µg/dL)
PbB_{GM} = geometric mean (or 50th percentile) of the lognormal distribution of PbBs (µg/dL)
GSD = geometric standard deviation of the lognormal distribution of PbBs (unitless)

3.0 Adult Lead Model for Non-Residential Receptor Populations

The USEPA's ALM is used to evaluate risks to non-residential receptor populations (USEPA, 2007). The following equation is used in the ALM to estimate quasi-steady state PbBs:

$$PbB_{GM} = PbB_0 + \frac{PbS \times BKSF \times IR \times AF \times EF}{AT}$$

PbB_{GM} = geometric mean (or 50th percentile) of the lognormal distribution of PbBs in adult workers (µg/dL)
PbB_0 = baseline PbB due to exposure to non-site-related sources of lead (µg/dL)
PbS = soil lead concentration (milligrams per kilogram [mg/kg])
BKSF = biokinetic slope factor (µg/dL per micrograms per day)
IR = soil ingestion rate (grams per day [g/day])
AF = gastrointestinal absorption fraction for lead in soil (unitless)
EF = exposure frequency (days per year)
AT = averaging time (years)

The receptor of concern in the ALM is the fetus of an adult worker. The USEPA assumes a linear relationship between PbB in the adult woman and the fetus. Therefore, the geometric mean PbB in the fetus is equal to PbB_{GM} multiplied by a constant, R. USEPA guidance (2003b) indicates that because the IEUBK Model is limited to 0 to 84 months, the ALM may also be used to assess older children and adolescents with appropriate adjustments. Per the USEPA's request, a time-

weighted approach was used to evaluate potential risks for recreational users and trespassers consistent with USEPA guidance (2003b).

3.1 Adult Lead Model Parameter Values

Table 1a presents the central tendency parameter values used to evaluate lead risks for the following receptors:

- Current and future commercial worker (risks presented in Table 1b)
- Future construction worker (risks presented in Table 1c)
- Current and future adult recreational user (risks presented in Table 1d)
- Current and future older child recreational user (risks presented in Table 1e)
- Current adolescent trespasser (risks presented in Table 1f)
- Current and future adult angler (risks presented in Table 1g)

Baseline Blood Lead Concentration (PbB_0)

The baseline PbB is intended to represent the best estimate of a reasonable central value of PbB in women of child-bearing age who are not exposed to lead-contaminated non-residential soil or dust at the site. The USEPA (2003b) recommends a range of baseline concentrations (1.7 to 2.2 µg/dL) based on national survey data for women from different demographic groups defined by geographic region, ethnicity, and race. Per the USEPA's request, a baseline value of 1.9 µg/dL was used in the ALM, which represents non-Hispanic white populations from the Northeast Region (USEPA, 2002a).

Geometric Standard Deviation

The USEPA recommends a range of geometric standard deviations (GSDs) that may be used in the ALM Model, depending on site-specific demographics and the characteristics of the receptor population (USEPA, 2003b). Higher GSD values imply greater variability in PbBs and will result in a higher probability of exceeding the target PbB of 10 µg/dL. Per the USEPA's request, a GSD of 2.01 was used in this lead evaluation to reflect a non-Hispanic white population from the Northeast (USEPA, 2002a).

Biokinetic Slope Factor

The Biokinetic Slope Factor (BKSF) represents the increase in typical adult PbB due to average daily lead uptake. The USEPA (2003b) recommends a default value of 0.4 µg lead/dL blood per µg lead absorbed per day for the BKSF. This value is based on empirical data on the relationship between tap-water lead concentrations and PbBs for a sample group of adult males. This default value was used for all exposure pathways in this evaluation.

Soil Ingestion Rate (IR_S)

Consistent with USEPA guidance (2003a; 2007), a soil ingestion rate of 50 mg/day was used to evaluate potential risks for the commercial worker, adult recreational user, older child recreational user, and adolescent trespasser. This value represents the central tendency ingestion rate for soil non-contact-intensive activities (including soil-derived indoor dust) (USEPA, 2007). Per the USEPA's request, a soil ingestion rate of 330 mg/day was used to evaluate potential lead exposures for the construction worker. However, it should be noted that this value is significantly

higher than the central tendency ingestion rate (100 mg/day) recommended by the USEPA (2007) for the construction worker scenario.

Exposure Frequency and Averaging Time

Exposure frequencies used in this lead evaluation were consistent with values used in the HHRA (ARCADIS, 2009). Consistent with USEPA guidance (2003b), a time-weighted average approach was used to evaluate potential risks for recreational users and trespassers.

Lead Absorption Fraction

This evaluation used a lead absorption fraction of 0.12, which is the default value recommended by the USEPA (2003b). This value is based on experimental studies of the bioavailability of ingested lead in adults with considerations for the following three major sources of variability: 1) effect of food on lead bioavailability, 2) nonlinearity in PbB, and 3) effect of lead form and particle size on bioavailability. The value assumes the a relative bioavailability of 0.6 for lead in site-related media as compared to soluble lead, and also assumes an absorption fraction (AF) of 0.2 for soluble lead. Thus, the final AF is 0.12 (i.e., AF = 0.6 x 0.2 = 0.12).

Fetal/Maternal Blood Lead Concentration ($R_{fetal/maternal}$)

This evaluation used a fetal/maternal blood lead ratio of 0.9 for adult receptors, which is the default value recommended by the USEPA (2003b) based on studies that have explored the relationship between umbilical cord and maternal PbBs. Because the older child recreational user and adolescent trespasser are not of child-bearing age, the fetal/maternal PbB ratio for these receptors was set equal to 1.

Fish Ingestion Rate

For the adult angler scenario, it was assumed that site-related lead exposure is restricted to fish consumption. The lead evaluation used the same Central Tendency Exposure fish ingestion rate (8.9 g/day) as was used in the HHRA (ARCADIS, 2009). This value represents the 50th percentile for fish-consuming anglers in Maine from Ebert et al. (1993). The lead evaluation conservatively assumes that 100 percent of fish consumed by the adult angler are from on-site sources.

3.2 Exposure Point Concentrations

The exposure point concentrations (EPCs) used in the lead evaluation are arithmetic means based on site-related data. As requested by the USEPA, media within each subarea were evaluated separately (i.e., medium-specific arithmetic means were used as the EPCs). Per the USEPA's request, one-half the laboratory detection limit was used as a surrogate for non-detects in calculating arithmetic mean lead concentrations. Attachment A presents the sample groupings used to calculate EPCs for each exposure scenario evaluated using the ALM. Attachment B presents the sample groupings used to calculate EPCs for each exposure scenario evaluated using the IEUBK model.

3.3 Adult Lead Model Results

Table 1b presents the modeling results for the commercial worker. The ALM predicts that exposure of commercial workers to site-related media at Nunes Parcel and Quinnville Wellfield

will result in a P10 less than 5 percent (i.e., less than 5 percent of fetal PbBs will be greater than the target of 10 µg/dL). However, exposure of commercial workers to soils within the RIDEM Soil Removal Area results in a P10 of 10 percent for surface soils and a P10 of 12 percent for surface and subsurface soils combined.

Table 1c presents the modeling results for the construction worker. Exposure of construction workers to sitewide shallow groundwater (incidental ingestion during intrusive activities) results in a P10 of less than 1 percent, which is well below the threshold of 5 percent. However, exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area results in P10s of 5 percent, 6 percent, 13 percent, and 89 percent, respectively, which are above the 5 percent threshold.

Table 1d presents the modeling results for the adult recreational user. Exposure of adult recreational users to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in P10s less than 5 percent.

Table 1e presents the modeling results for the older child recreational user. Because this receptor is not of child-bearing age, the ALM was only used to estimate the geometric mean of PbB for the exposed individual. Exposure of older child recreational users to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in PbBs less than 10 µg/dL.

Table 1f presents the modeling results for the adolescent trespasser. Similar to the older child recreational user, the ALM was only used to estimate the geometric mean of PbB for the exposed individual. Exposure of the adolescent trespasser to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in PbBs less than 10 µg/dL.

Table 1g presents the modeling results for the adult angler. Exposure of adult anglers via consumption of fish tissue from the site (OU2) results in a P10 of less 1 percent, which is well below the threshold of 5 percent. Likewise, evaluation of potential lead risks associated with consumption of fish from upstream reaches of the Blackstone River (BR1 and BR2) result in P10s less than 1 percent.

3.4 Uncertainties Associated with the Adult Lead Model

Notable uncertainties associated with the ALM in this evaluation are associated with the limited analytical data for the RIDEM Soil Removal Area and the construction worker soil ingestion rate. At the request of the USEPA, the RIDEM Soil Removal Area was evaluated as a separate subarea within the Nunes Parcel using only three sampling points (SO-033-NP, SO-107-NP, and SO-108-NP). However, this conservatively assumes that the receptor would preferentially spend all of their time in a relatively small area of the site. Lead concentrations in these samples ranged from 10 mg/kg (SO-107-NP) to 5,460 mg/kg (SO-033-NP, 1 to 5 feet).

USEPA guidance (2007) indicates that a soil ingestion rate of 100 mg/day is appropriate for evaluating contact-intensive activities for construction workers. However, at the request of the USEPA, an upper-bound soil ingestion rate of 330 mg/day was used in this evaluation in the ALM. Using a soil ingestion rate of 100 mg/day, the resulting P10s for Quinnville Wellfield and Southern Bank surface soils would be 1 percent and 2 percent, respectively. The P10s for the RIDEM Soil Removal Area and Nunes Parcel (surface and subsurface soil) would be 39 percent

and 3 percent, respectively, if a soil ingestion rate of 100 mg/day was used for the construction worker.

4.0 IEUBK Model for Residential Receptor Populations

The IEUBK Model consists of four modules (exposure, uptake, biokinetics, and variability) that mathematically and statistically link environmental lead exposure to blood lead concentrations for a population of children, ages 0 to 84 months (USEPA, 2002b). USEPA's IEUBK Model (Windows version 1, Build 264) was used to assess risks for the following scenarios for children ages 0 to 84 months:

- Hypothetical future exposure of young child residents to site-wide groundwater
- Current and hypothetical future exposure of young child anglers to fish from the site (OU2) and upstream reaches of the Blackstone River (BR1 and BR2)
- Hypothetical future exposure of young child residents to soils at Nunes Parcel and site-wide groundwater
- Hypothetical future exposure of young child residents to soils at the RIDEM Soil Removal Area and site-wide groundwater.

The application of the IEUBK Model assumed one child, one location, and homogeneous media concentrations. Similar to the ALM, the EPC(s) used in the IEUBK Model represent arithmetic means of the available data. Per the USEPA's request, one-half the laboratory detection limit was used for non-detects in the calculation of arithmetic means.

4.1 IEUBK Model Parameters Values

Tables 2a, 3a, and 5a present the parameter values used in the IEUBK Model. The majority of the parameter values used in the IEUBK Model were defaults, with the exception of using more recent estimates of dietary lead intake, evaluating an alternate diet intake scenario (i.e., fish ingestion), using site-specific lead concentration in drinking water, and using a site-specific background lead concentration for soils. The use of site-specific background soils data was previously approved by the USEPA following the February 20, 2007 meeting in Boston. Specifically, as noted in Table 1: "Technical items discussed during the 2/20/07 meeting in Boston, MA regarding the Peterson Puritan Superfund Site HHRA," on the issue of "identification of background soil samples," Metcalf & Eddy state "offsite soil samples from Mackland Farms will be used as site-specific background samples." Attachment B presents the sample groupings used to calculate site-specific EPCs for each exposure scenario evaluated using the IEUBK Model.

<u>Dietary Data</u>

The default dietary lead intakes in the IEUBK Model are based on data collected by the U.S. Food and Drug Administration (USFDA) in the late 1980s. More recent USFDA (2001) data are available, and therefore, were incorporated into the model. In addition, for the fish consumption scenario, alternate diet intakes consisted of site-specific data for fish tissue collected from OU2, BR1, and BR2. The lead intake from fish was calculated using the following equation:

Fish Intake (µg lead/day) = (Total meat intake rate, g/day) x (% Total Meat Intake from Fish) x (% Fish from Source) x (Fish Concentration, µg lead/day)

Where:

% of Total Meat Intake from Fish = 10%
% Fish Consumption from Source = 100%

The fish concentrations represent the arithmetic means of the fish fillet data for each subarea (OU2 = 0.012 mg/kg; BR1 = 0.013 mg/kg; and BR2 = 0.0056 mg/kg). The resulting lead intakes attributable to consumption of fish for OU2, BR1, and BR2 are presented in Table 4.

Lead Concentration in Drinking Water

To evaluate hypothetical future exposure of residential young children to lead in drinking water, the arithmetic mean of the site-wide groundwater data (2.17 micrograms per liter) was used in the IEUBK Model. This evaluation assumes that site-related groundwater may be used as a potable source in the future, and that current measured concentrations are representative of future concentrations.

Lead Concentration in Soil/Dust

For the site-wide groundwater and fish scenarios, the soil/dust concentration represents a site-specific background concentration (i.e., the arithmetic mean of the Mackland Farms soils data [samples SO-072-MF, SO-073-MF, and SO-074-MF]). For the evaluation of hypothetical future residential young children exposed to soils and groundwater at Nunes Parcel, the soil/dust lead concentration (270 mg/kg) represents the arithmetic mean of surface and subsurface soils from Nunes Parcel. For the evaluation of hypothetical future residential young children exposed to soils and groundwater at the RIDEM Soils Removal Area, the soil/dust lead concentration (2,050 mg/kg) represents the arithmetic mean of surface and subsurface soils (i.e., the three sampling sampling points identified by the USEPA [SO-033-NP, SO-107-NP, and SO-108-NP]).

4.2 IEUBK Model Results

Table 2b presents the input parameters and results for evaluation of hypothetical future exposure of young child residents to site-wide groundwater. There is less than a 1 percent probability that children exposed to lead in groundwater will have a PbB that exceeds the target PbB of concern (10 µg/dL) (i.e., well below the P10 = 5 percent threshold).

Table 3b presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from OU2. There is less than a 1 percent probability that children exposed to lead in fish will have a PbB greater than 10 µg/dL.

To place OU2 lead risks into perspective, consumption of fish from upstream reaches of the Blackstone River (BR1 and BR2) was also evaluated. Table 3c presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from BR1. Results indicate there is less than a 1 percent probability that children exposed to lead in fish from BR1 will have a PbB greater than 10 µg/dL. Table 3d presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from BR2. Results indicate there is less than a 1 percent probability that children exposed to lead in fish from BR2 will have a PbB greater than 10 µg/dL.

Table 5b presents the input parameters and results for evaluation of exposure of hypothetical young child residents to soil and groundwater from Nunes Parcel. Results indicate there is a 2

percent probability (less than the 5 percent threshold) that children exposed to soil and groundwater will have a PbB greater than 10 µg/dL.

Table 5c presents the input parameters and results for evaluation of exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area. Results indicate there is an 87 percent probability (above the 5 percent threshold) that children exposed to soil and groundwater will have a PbB greater than 10 µg/dL.

4.3 Uncertainties Associated with the IEUBK Model

The notable uncertainty associated with the use of the IEUBK Model is that many of the default parameters may not accurately reflect site conditions (e.g., air emissions, dietary lead intake, bioavailability). Specifically, the bioavailability factors used in the model are based on the absolute bioavailability of soluble lead acetate (50 percent) (used for lead in food and water) and the relative bioavailability of lead in soil (60 percent), which yields an absolute bioavailability for soil lead of 30 percent (i.e., 60 percent x 50 percent = 30 percent). The USEPA (1999) notes that the default estimates of bioavailability have significant variability and uncertainty due to many factors related to the site-specific conditions (e.g., lead speciation, mineralogy, soil particle size) and receptor population (complex biological process of gastrointestinal absorption).

5.0 Summary and Conclusions

In summary, the lead evaluation identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- Exposure of commercial workers to soils within the RIDEM Soil Removal Area
- Exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- Exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

However, the quantification of potential risks for the commercial worker, construction worker, and hypothetical young child resident exposed to soils within the RIDEM Soil Removal Area is based on a very limited (n = 5) sample size, which may present an artificially high average due to lead concentrations in sample SO-033-NP (2,380 mg/kg in the 0 to 1 foot interval and 5,460 mg/kg in the 1 to 5-foot interval). Although the potential exposure of construction workers to site soils produces risks above the USEPA target, these risks would likely be mitigated with the use of proper health and safety protocols, properly trained personnel, and personal protective equipment.

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Tables

Table 1a. Summary of Parameter Values Used in the Adult Lead Model (ALM) for Evaluation of Non-Residential Lead Risks Associated with Site-Related Soil, Sediment, Groundwater, and Fish
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Exposure Variable	Description	Units	Receptor Scenarios					
			Commercial Worker [1]	Construction Worker [1]	Adult Recreational User [2]	Older Child Recreational User [2,3]	Adolescent Trespasser [2,4]	Adult Angler [1]
			Table 1b	Table 1c	Table 1d	Table 1e	Table 1f	Table 1g
PbS	Lead concentration in medium of interest	ppm	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9 [a]	0.9 [a]	0.9 [a]	1.0 [b]	1.0 [b]	0.9 [a]
$BKSF_S$	Biokinetic Slope Factor (soil, sediment, and food)	µg/dL per µg/day	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]
$BKSF_W$	Biokinetic Slope Factor (groundwater)	µg/dL per µg/day	NA	0.4 [a]	NA	NA	NA	NA
GSD_i	Geometric standard deviation PbB	--	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]
PbB_0	Baseline PbB	µg/dL	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]
IR_S	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.05 [d]	0.33 [o]	0.05 [d]	0.05 [d]	0.05 [d]	NA
IR_f	Food ingestion rate (fish)	g/day	NA	NA	NA	NA	NA	8.9 [e]
IR_w	Shallow groundwater ingestion rate	L/day	NA	0.05 [m]	NA	NA	NA	NA
$AF_{S, D, W}$	Absorption fraction, Pb in soil, dust, sediment, and groundwater	--	0.12 [a]	0.12 [a]	0.12 [a]	0.12 [a]	0.12 [a]	NA
AF_f	Absorption fraction, Pb in food	--	NA	NA	NA	NA	NA	0.12 [f]
$EF_{S, D, W}$	Exposure frequency, Pb pathway	days/yr	219 [i]	62 [h]	2 [g]	2 [g]	2 [g]	365 [j]
$AT_{S, D, W}$	Averaging time, Pb pathway	days/yr	365 [k]	84 [l]	7 [n]	7 [n]	7 [n]	365 [k]

Notes:

[1] Lead exposures for these receptors were evaluated individually for each applicable subarea. Consistent with the ALM guidance (USEPA, 2003a; 2007), the arithmetic mean of lead concentrations was used in the ALM.

[2] A time-weighted approach was used to evaluate potential lead risks for these receptors in the ALM, consistent with Example 6 in Appendix A in USEPA (2003b).

[3] Older child = 6 - 12 years of age

[4] Adolescent = 9 - 18 years of age

[5] Consistent with USEPA (2003a; 2004; 2007) guidance, dermal exposures to lead in aqueous and non-aqueous media were not quantitatively evaluated with the ALM due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.

[a] Default value (USEPA, 2003a).

[b] Fetal/maternal PbB ratio does not apply because receptor is assumed to be an older child (6-12 years) or adolescent (9-18 years); risks to fetus of pregnant women are evaluated in adult receptor scenarios.

[c] Default value for non-Hispanic white populations from the Northeast region (USEPA, 2002).

[d] Default CTE value for soil ingestion (USEPA, 2003a; 2007). Value for commercial worker assumes non-contact-intensive activities.

[e] CTE fish ingestion rate based on the 50th percentile for Maine anglers (Ebert et al., 1993. Estimating Consumption of Freshwater Fish among Maine Anglers. *North American Journal of Fisheries Management* 13:737-745.). Assumes 100% of fish consumed are from on-site sources.

Table 1a. Summary of Parameter Values Used in the Adult Lead Model (ALM) for Evaluation of Non-Residential Lead Risks Associated with Site-Related Soil, Sediment, Groundwater, and Fish
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Notes (continued):

[f] Value considered protective for bioavailable fraction of lead in fish (USEPA, 2007).
[g] Reflects the same CTE value used in baseline human health risk assessment (2 days per week for approximately 6 months). Applying the time-weighted approach consistent with note [2] above, the resulting exposure frequency is set equal to 2 days/week.
[h] Same CTE value used in baseline human health risk assessment (5 days per week for approximately 12 weeks).
[i] Default central tendency estimate of exposure frequency for commercial/industrial workers from USEPA (2007).
[j] Fish ingestion rate reflects a longterm average daily intake assuming 100% of fish are obtained from the site; therefore, EF is 365 days/year.
[k] Averaging time appropriate for chronic exposure scenario (USEPA, 2003a; 2007).
[l] Averaging time is based on EF to avoid diluting exposures over the entire year (7 days per week x 12 weeks/year = 84 days/year).
[m] Default surface water contact rate for recreational swimmers (USEPA, 1989). Assumed to provide a conservative estimate of incidental ingestion by construction workers exposed to shallow groundwater.
[n] Applying the time-weighted approach consistent with note [2] above, the resulting averaging time is set equal to 7 days/week.
[o] Same CTE value used in baseline human health risk assessment.
µg/dL = micrograms per deciliter
g/day = grams per day
L/day = liters per day
NA = not applicable

References:

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Table 1b. Adult Lead Model (ALM) for Evaluation of Lead Risks for Commercial Workers Exposed to Site-Related Soil
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Commercial Workers				
			Nunes Parcel Surface Soil [1]	Quinnville Well Field Surface Soil [1,2]	RIDEM Soil Removal Area, Surface Soil [1,3]	RIDEM Soil Removal Area, All Soil [2,4]	Nunes Parcel Surface and Subsurface Soil [2]
PbS	Soil lead concentration (arithmetic mean) [a]	mg/kg or ppm	239	142	1790	2050	270
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil and dust)	--	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	219	219	219	219	219
AT	Averaging time, Pb pathway	days/yr	365	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**µg/dL**	**2.2**	**2.1**	**4.5**	**4.9**	**2.3**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	6.4	6.0	12.7	13.8	6.5
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**1.1%**	**0.9%**	**9.6%**	**11.8%**	**1.2%**

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[3] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples, only one of which (SO-033-NP) was surficial (0 - 1 foot below ground surface). Therefore, the surface soil PbS for the soil removal area represents one sampling point rather than an arithmetic mean of several sampling points.
[4] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 1c. Adult Lead Model (ALM) for Evaluation of Lead Risks for Construction Workers Exposed to Site-Related Soil and Shallow Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Construction Workers				
			Site-Wide Shallow Groundwater [1]	Quinnville Well Field Surface Soil [1]	Southern Bank Surface Soil [1]	RIDEM Soil Removal Area, All Soil [1,2]	Nunes Parcel Surface and Subsurface Soil [1]
PbS	Lead concentration in medium of interest (arithmetic mean) [a]	ppm	0.0030	142	168	2050	270
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9
$IR_{S,W}$	Ingestion rate (soil, groundwater)	g/day	0.050	0.330	0.330	0.330	0.330
AF	Absorption fraction (Pb in soil, dust, and groundwater)	--	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	62	62	62	62	62
AT	Averaging time, Pb pathway	days/yr	84	84	84	84	84
PbB_{adult}	**PbB of adult worker, geometric mean**	**µg/dL**	**1.9**	**3.6**	**3.9**	**25.9**	**5.1**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	5.4	10.1	11.0	73.4	14.4
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.6%**	**5.2%**	**6.5%**	**88.7%**	**13.0%**

Notes:
ALM Version date 5/19/05
[1] Future scenario, as indicated in Table 1 of the baseline HHRA.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 1d. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adult Recreational Users Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adult Recreational Users										
			Southern Bank Surface Soil [1,2]	Southern Bank Sediment [1,2]	Nunes Parcel Surface and Subsurface Soil [2]	Downstream of Landfill Sediment [2,3]	Quinnville Well Field Surface Soil [2]	Upstream of Landfill Sediment [2,4]	Debris Fields Surface Soil [2]	Wetlands Sediment [2]	RIDEM Soil Removal Area, All Soil [1,5]	Landfill Surface Soil [2]	Adjacent to Landfill Sediment [2,6]
PbS	Lead concentration in media of interest (arithmetic mean) [a]	mg/kg or ppm	168	41	270	105	142	76	154	71	2050	201	71
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR_S	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7	7
PbB_{adult}	**PbB of adult recreational user, geometric mean**	**µg/dL**	**2.0**	**1.9**	**2.1**	**2.0**	**2.0**	**2.0**	**2.0**	**1.9**	**3.3**	**2.0**	**1.9**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adults	µg/dL	5.7	5.5	5.9	5.6	5.7	5.5	5.7	5.5	9.4	5.8	5.5
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.7%**	**0.6%**	**0.8%**	**0.7%**	**0.7%**	**0.6%**	**0.7%**	**0.6%**	**4.1%**	**0.8%**	**0.6%**

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[3] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
[4] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
[5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.
[6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 1e. Adult Lead Model (ALM) for Evaluation of Lead Risks for Older Child Recreational Users Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Older Child Recreational Users										
			Southern Bank Surface Soil [1,2]	Southern Bank Sediment [1,2]	Nunes Parcel Surface and Subsurface Soil [2]	Downstream of Landfill Sediment [2,3]	Quinnville Well Field Surface Soil [2]	Upstream of Landfill Sediment [2,4]	Debris Fields Surface Soil [2]	Wetlands Sediment [2]	RIDEM Soil Removal Area, All Soil [1,5]	Landfill Surface Soil [2]	Adjacent to Landfill Sediment [2,6]
PbS	Lead concentration in media of interest (arithmetic mean) [a]	mg/kg or ppm	168	41	270	105	142	76	154	71	2050	201	71
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR_S	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7	7
PbB_{adult}	**PbB of older child recreational user, geometric mean**	**µg/dL**	**2.0**	**1.9**	**2.1**	**2.0**	**2.0**	**2.0**	**2.0**	**1.9**	**3.3**	**2.0**	**1.9**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adults	µg/dL	--	--	--	--	--	--	--	--	--	--	--
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[3] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
[4] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
[5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.
[6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 1f. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adolescent Trespassers Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adolescent Trespassers									
			Nunes Parcel Surface Soil [1]	Downstream of Landfill Sediment [1,2]	Quinnville Well Field Surface Soil [1]	Debris Fields Surface Soil [1]	Upstream of Landfill Sediment [1,3]	Southern Bank Sediment [1,4]	Wetlands Sediment [1]	RIDEM Soil Removal Area, Surface Soil [1,5]	Landfill Surface Soil [1]	Adjacent to Landfill Sediment [1,6]
PbS	Lead concentration in media of interest (arithmetic mean) [a]	mg/kg or ppm	239	105	142	154	76	41	71	1790	201	71
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR_S	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7
PbB_{adult}	**PbB of adolescent trespasser, geometric mean**	**µg/dL**	**2.1**	**2.0**	**2.0**	**2.0**	**2.0**	**1.9**	**1.9**	**3.1**	**2.0**	**1.9**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adults	µg/dL	--	--	--	--	--	--	--	--	--	--
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
[3] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
[4] Sediment data represent those collected from the backwater area of Blackstone River and Pond F.
[5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples, only one of which (SO-033-NP) was surficial (0 - 1 foot below ground surface). Therefore, the surface soil PbS for the soil removal area represents one sampling point rather than an arithmetic mean of several sampling points.
[6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 1g. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adult Angler Exposed to Edible Fish Tissue
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adult Angler		
			OU2 Fish Fillets [1,2]	BR-1 Fish Fillets [1,2]	BR-2 Fish Fillets [1,2]
PbS	Fish (fillet) tissue lead concentration (arithmetic mean) [a]	mg/kg or ppm	0.01	0.01	0.006
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9
IR_S	Fish ingestion rate	g/day	8.9	8.9	8.9
AF	Absorption fraction (food)	--	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	365	365	365
AT	Averaging time, Pb pathway	days/yr	365	365	365
PbB_{adult}	**PbB of adult angler, geometric mean**	**µg/dL**	**1.9**	**1.9**	**1.9**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult anglers	µg/dL	5.4	5.4	5.4
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.6%**	**0.6%**	**0.6%**

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m^3
1 - 2	0.10 [a]	µg/m^3
2 - 3	0.10 [a]	µg/m^3
3 - 4	0.10 [a]	µg/m^3
4 - 5	0.10 [a]	µg/m^3
5 - 6	0.10 [a]	µg/m^3
6 - 7	0.10 [a]	µg/m^3
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m^3/day
1 - 2	3 [a]	m^3/day
2 - 5	5 [a]	m^3/day
5 - 7	7 [a]	m^3/day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g

Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
ALTERNATE DIET SOURCES (by food class) (continued)		
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
DRINKING WATER		
Lead Concentration in drinking water	2.17 [c]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	101.2 [d]	µg/g
dust	101.2 [d]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m^3 air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	0 [a]	%
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless

Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to site-specific groundwater concentrations of lead via ingestion from a potable source

[3] The IEUBK model (USEPA, 2002) does not allow for a quantitative evaluation of dermal exposures to lead in groundwater presumably due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.

[a] Default value (USEPA, 2002).

[b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition Web site. (http://www.cfsan.fda.gov/~comm/tdstoc. html).

[c] Groundwater concentration represents arithmetic mean of site data.

[d] Background soil concentrations of lead represent arithmetic mean of Mackland Farms soils data (samples

References:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 2b: IEUBK Model for Exposure of Young Child Residents to Site-Wide Groundwater

LEAD MODEL FOR WINDOWS Version 1.0

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Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
Water Data
Arithmetic mean of site data.
Soil/Dust Data
Soil and dust concentration represent arithmetic mean of Mackland Farms soils data.
GSD, Cutoff and Age Type
GSD, Cutoff and Age Type

==========

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.000	101.000
1-2	101.000	101.000
2-3	101.000	101.000
3-4	101.000	101.000
4-5	101.000	101.000
5-6	101.000	101.000
6-7	101.000	101.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

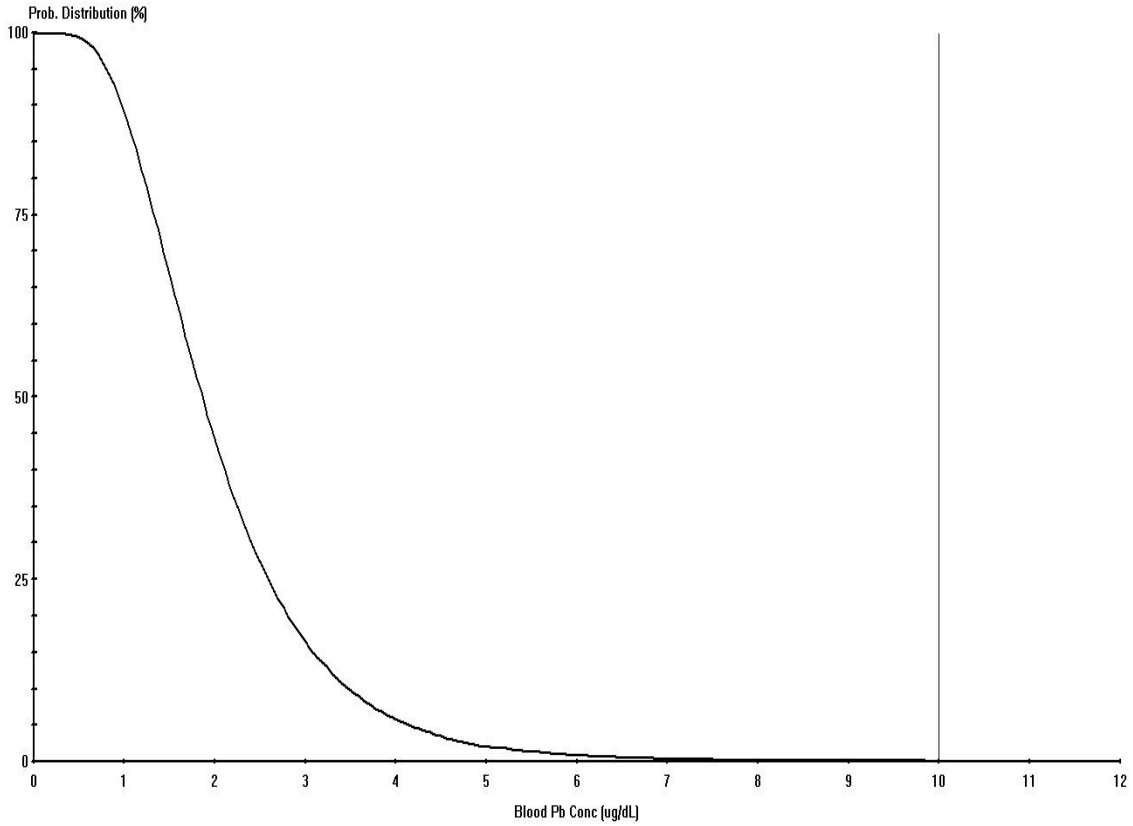
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.507	0.000	0.207
1-2	0.034	1.237	0.000	0.516
2-3	0.062	1.374	0.000	0.540
3-4	0.067	1.320	0.000	0.554
4-5	0.067	1.271	0.000	0.581
5-6	0.093	1.340	0.000	0.615
6-7	0.093	1.465	0.000	0.627

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.191	2.3
1-2	3.894	5.682	2.4
2-3	3.917	5.894	2.2
3-4	3.943	5.884	2.1
4-5	2.952	4.871	1.7
5-6	2.667	4.715	1.5
6-7	2.523	4.709	1.4



Cutoff = 10.000 ug/dl
Geo Mean = 1.955
GSD = 1.600
% Above = 0.026

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Angler)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m^3
1 - 2	0.10 [a]	µg/m^3
2 - 3	0.10 [a]	µg/m^3
3 - 4	0.10 [a]	µg/m^3
4 - 5	0.10 [a]	µg/m^3
5 - 6	0.10 [a]	µg/m^3
6 - 7	0.10 [a]	µg/m^3
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m^3/day
1 - 2	3 [a]	m^3/day
2 - 5	5 [a]	m^3/day
5 - 7	7 [a]	m^3/day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
ALTERNATE INTAKE (Fish Ingestion)		

Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Angler)

Parameter	Value	Units
Ingestion rate:		
Age (years) = 0 - 1	see Table 4	µg Pb/day
1 - 2	see Table 4	µg Pb/day
2 - 3	see Table 4	µg Pb/day
3 - 4	see Table 4	µg Pb/day
4 - 5	see Table 4	µg Pb/day
5 - 6	see Table 4	µg Pb/day
6 - 7	see Table 4	µg Pb/day
DRINKING WATER		
Lead Concentration in drinking water	4 [a]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	101.2 [c]	µg/g
dust	101.2 [c]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m^3 air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	50 [d]	%

Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Angler)

Parameter	Value	Units
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS (continued)		
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to lead via consumption of edible fish tissue.

[a] Default value (USEPA, 2002).

[b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food

[c] Background soil concentrations of lead represent arithmetic mean of Mackland Farms soils data (samples

[d] Bioavailability for fish ingestion would be the same as that for diet.

References:

USEPA. 2007. Frequent Questions from Risk Assessors on the IEUBK Model. Accessed on-line 4/24/08 at http://www.epa.gov/superfund/health/contaminants/lead/ieubkfaq.htm. Updated August 24, 2007.

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 3b: IEUBK Model for Consumption of OU2 Fish by Young Child Angler

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
Alternate Source Data
OU2 fish intake
Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.
GI Values + Bioavailability Data
Bioavailability for fish ingestion.

==========

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.036
1-2	0.100
2-3	0.110
3-4	0.120
4-5	0.130
5-6	0.130
6-7	0.150

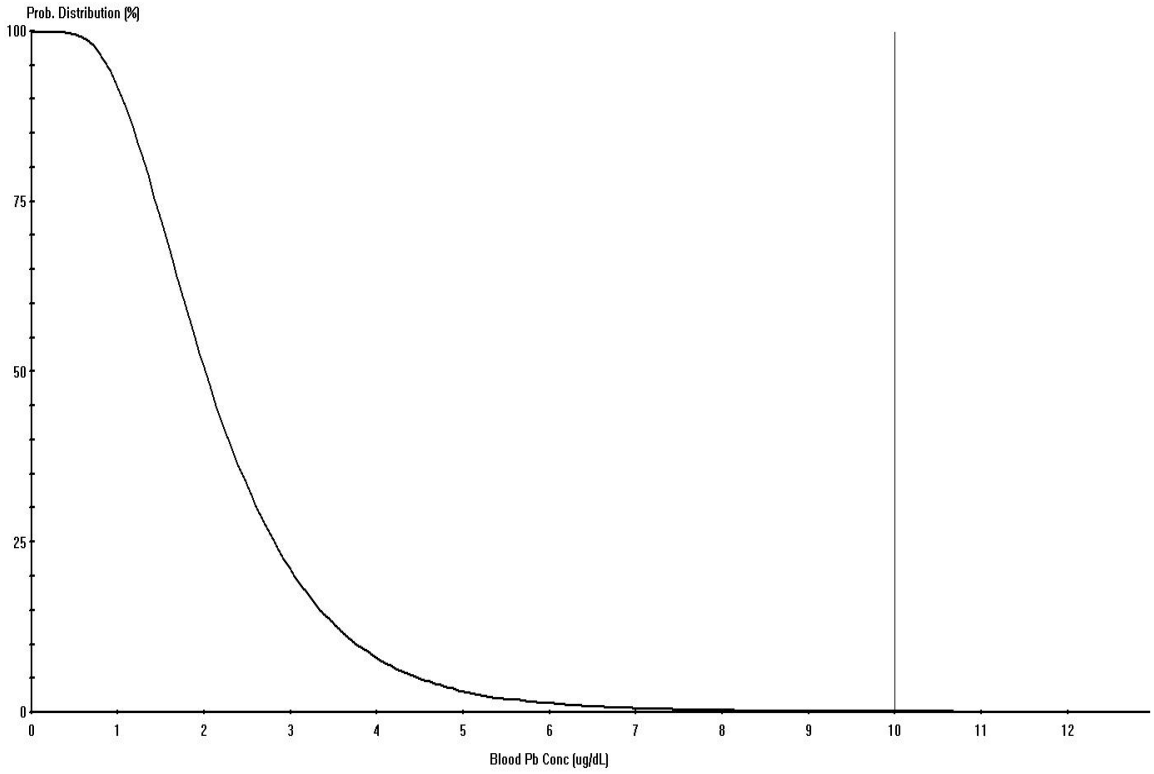
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.017	0.381
1-2	0.034	1.232	0.047	0.948
2-3	0.062	1.369	0.052	0.992
3-4	0.067	1.316	0.058	1.018
4-5	0.067	1.267	0.063	1.068
5-6	0.093	1.336	0.063	1.131
6-7	0.093	1.461	0.073	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.379	2.4
1-2	3.885	6.147	2.6
2-3	3.911	6.387	2.4
3-4	3.938	6.396	2.3
4-5	2.949	5.414	1.9
5-6	2.665	5.289	1.7
6-7	2.522	5.302	1.5



Cutoff = 10.000 ug/dl
Geo Mean = 2.118
GSD = 1.600
% Above = 0.048

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

Table 3c: IEUBK Model for Consumption of BR1 Fish by Young Child Anglers

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
GI Values + Bioavailability Data
Bioavailability for fish ingestion
Alternate Source Data
BR1 fish intake
Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.
GI Values + Bioavailability Data

==========

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.038
1-2	0.110
2-3	0.120
3-4	0.130
4-5	0.140
5-6	0.140
6-7	0.160

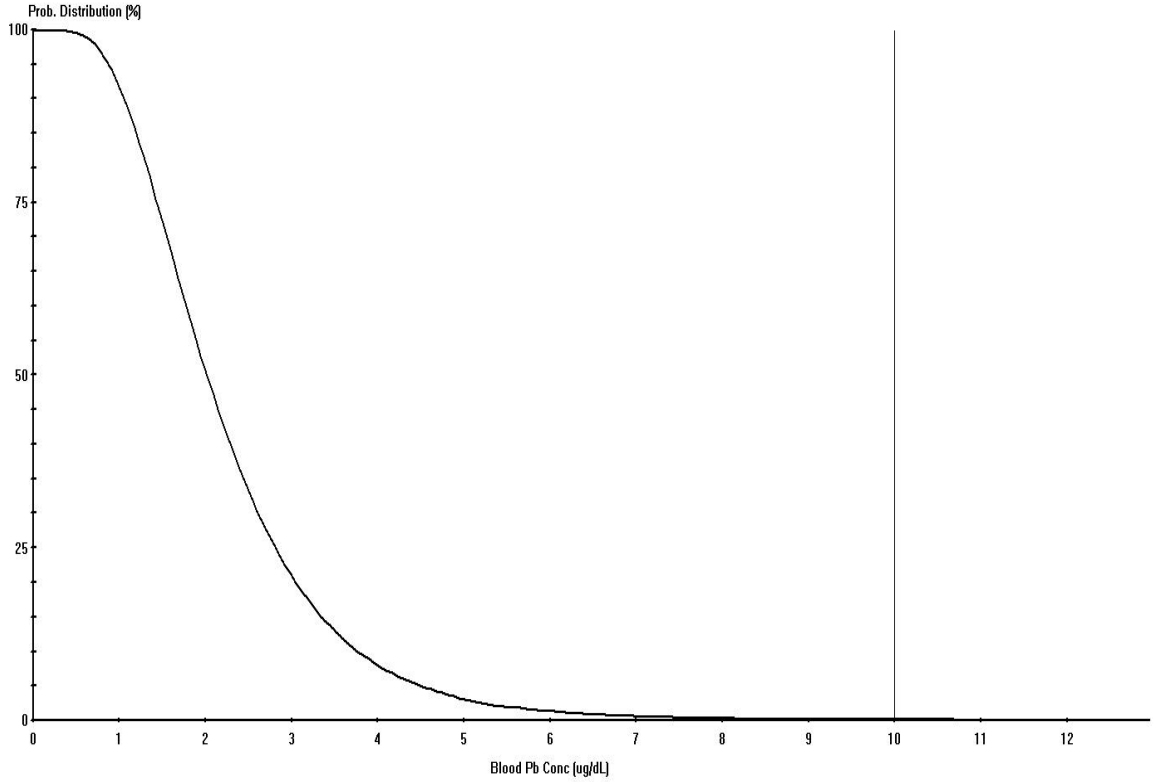
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.018	0.381
1-2	0.034	1.232	0.052	0.948
2-3	0.062	1.369	0.057	0.992
3-4	0.067	1.316	0.062	1.018
4-5	0.067	1.267	0.068	1.068
5-6	0.093	1.336	0.068	1.131
6-7	0.093	1.461	0.078	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.379	2.4
1-2	3.885	6.152	2.6
2-3	3.910	6.391	2.4
3-4	3.937	6.401	2.3
4-5	2.949	5.419	1.9
5-6	2.665	5.293	1.7
6-7	2.522	5.307	1.5



Cutoff = 10.000 ug/dl
Geo Mean = 2.119
GSD = 1.600
% Above = 0.048

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

Table 3d: IEUBK Model for Consumption of BR2 Fish by Young Child Anglers

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
GI Values + Bioavailability Data
Bioavailability for fish ingestion
Alternate Source Data
BR2 fish intake
Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.

==========

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.017
1-2	0.049
2-3	0.054
3-4	0.057
4-5	0.060
5-6	0.062
6-7	0.068

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.008	0.381
1-2	0.034	1.233	0.023	0.948
2-3	0.062	1.369	0.026	0.992
3-4	0.067	1.316	0.027	1.019
4-5	0.067	1.268	0.029	1.069
5-6	0.093	1.336	0.030	1.131
6-7	0.093	1.461	0.033	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.370	2.4
1-2	3.886	6.124	2.6
2-3	3.911	6.361	2.4
3-4	3.938	6.367	2.2
4-5	2.949	5.381	1.9
5-6	2.665	5.256	1.7
6-7	2.522	5.263	1.5

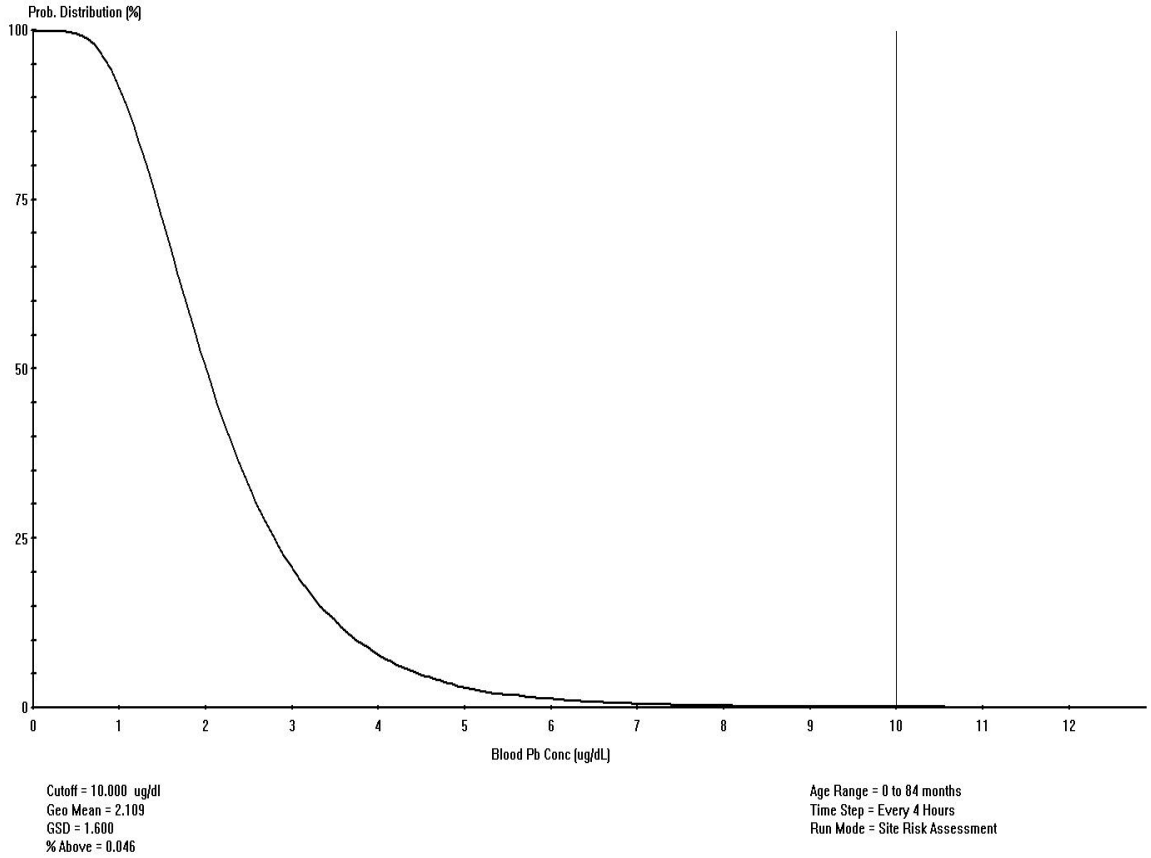


Table 4. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model to Calculate Average Daily Lead Intake from Fish
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Angler)

Parameter	Value	Units
TOTAL MEAT INTAKE (g/day)		
Ingestion rate:		
Age (years) = 0 - 1	29.6 [a]	g/day
1 - 2	87.4 [a]	g/day
2 - 3	95.7 [a]	g/day
3 - 4	101.6 [a]	g/day
4 - 5	107.4 [a]	g/day
5 - 6	111.9 [a]	g/day
6 - 7	121.0 [a]	g/day
% of Total Meat Intake from Fish	10 [b]	%
% Fish Consumption from Source	100 [c]	%
Lead Concentration in Fish	site-specific [d]	µg Pb/g fish
DIETARY INTAKE FROM FISH (µg Pb/day)		
Dietary Lead Intake		
Age (years) = 0 - 1	calculation [e]	µg Pb/day
1 - 2	calculation [e]	µg Pb/day
2 - 3	calculation [e]	µg Pb/day
3 - 4	calculation [e]	µg Pb/day
4 - 5	calculation [e]	µg Pb/day
5 - 6	calculation [e]	µg Pb/day
6 - 7	calculation [e]	µg Pb/day
DIETARY INTAKE FROM FISH (µg Pb/day) - OU2		
Dietary Lead Intake		
Age (years) = 0 - 1	0.036 [f]	µg Pb/day
1 - 2	0.10 [f]	µg Pb/day
2 - 3	0.11 [f]	µg Pb/day
3 - 4	0.12 [f]	µg Pb/day
4 - 5	0.13 [f]	µg Pb/day
5 - 6	0.13 [f]	µg Pb/day
6 - 7	0.15 [f]	µg Pb/day
DIETARY INTAKE FROM FISH (µg Pb/day) - BR1		
Dietary Lead Intake		
Age (years) = 0 - 1	0.038 [g]	µg Pb/day
1 - 2	0.11 [g]	µg Pb/day
2 - 3	0.12 [g]	µg Pb/day
3 - 4	0.13 [g]	µg Pb/day
4 - 5	0.14 [g]	µg Pb/day
5 - 6	0.14 [g]	µg Pb/day
6 - 7	0.16 [g]	µg Pb/day

Table 4. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model to Calculate Average Daily Lead Intake from Fish
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Angler)

Parameter	Value	Units
DIETARY INTAKE FROM FISH (µg Pb/day) - BR2		
Dietary Lead Intake		
Age (years) = 0 - 1	0.017 [h]	µg Pb/day
1 - 2	0.049 [h]	µg Pb/day
2 - 3	0.054 [h]	µg Pb/day
3 - 4	0.057 [h]	µg Pb/day
4 - 5	0.060 [h]	µg Pb/day
5 - 6	0.062 [h]	µg Pb/day
6 - 7	0.068 [h]	µg Pb/day

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to lead concentrations via consumption of edible fish tissue.

[a] USEPA. Frequently Asked Questions - Can IEUBK be Used to Develop a Site-specific Fish Advisory?
http://www.epa.gov/superfund/lead/ieubkfaq.htm#fish

[b] Estimate for recreational anglers. USEPA. Frequently Asked Question - Can IEUBK be Used to Develop a
Site-specific Fish Advisory? http://www.epa.gov/superfund/lead/ieubkfaq.htm#fish

[c] Assumes 100% of fish come from Blackstone River or on-site ponds. This may overestimate lead intake
from fish because a portion of the default dietary Pb intake includes fish from other sources.

[d] Fish tissue concentration represents arithmetic mean of site-related data.
OU2 fish = 0.012 mg/kg; BR1 fish = 0.013 mg/kg; BR2 fish = 0.0056 mg/kg

[e] Intake from Fish (µg Pb/day) = (Total Meat Intake Rate g/day) x (% Total Meat Intake from Fish) x (% Fish
from Source) x (Concentration in Fish µg Pb/g)

[f] Arithmetic mean of OU2 fish fillets is 0.012 mg/kg.

[g] Arithmetic mean of BR1 fish fillets is 0.013 mg/kg.

[h] Arithmetic mean of BR2 fish fillets is 0.0056 mg/kg.

Reference:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m^3
1 - 2	0.10 [a]	µg/m^3
2 - 3	0.10 [a]	µg/m^3
3 - 4	0.10 [a]	µg/m^3
4 - 5	0.10 [a]	µg/m^3
5 - 6	0.10 [a]	µg/m^3
6 - 7	0.10 [a]	µg/m^3
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m^3/day
1 - 2	3 [a]	m^3/day
2 - 5	5 [a]	m^3/day
5 - 7	7 [a]	m^3/day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
ALTERNATE DIET SOURCES (by food class) (continued)		
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
DRINKING WATER		
Lead Concentration in drinking water	2.17 [c]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	532 [d]	µg/g
dust	532 [d]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m^3 air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	0 [a]	%
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child [1,2] (Resident)

Parameter	Value	Units
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to lead in onsite surface and subsurface soils within Nunes Parcel and ingestion of site-related groundwater.

[3] The IEUBK model (USEPA, 2002) does not allow for a quantitative evaluation of dermal exposures to lead in soils presumably due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.

[a] Default value (USEPA, 2002a).

[b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition Web site. (http://www.cfsan.fda.gov/~comm/tdstoc. html).

[c] Groundwater concentration represents arithmetic mean of site data.

[d] Soil concentration represents arithmetic mean of site data.

References:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 5b: IEUBK Model for Exposure of Young Child Residents to Nunes Parcel Soil and Groundwater

LEAD MODEL FOR WINDOWS Version 1.0

==========
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 08/20/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
Water Data
Arithmetic mean of site data
Soil/Dust Data
Arithmetic mean of Nunes Parcel soils data (surface and subsurface)

==========
The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	270.000	270.000
1-2	270.000	270.000
2-3	270.000	270.000
3-4	270.000	270.000
4-5	270.000	270.000
5-6	270.000	270.000
6-7	270.000	270.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

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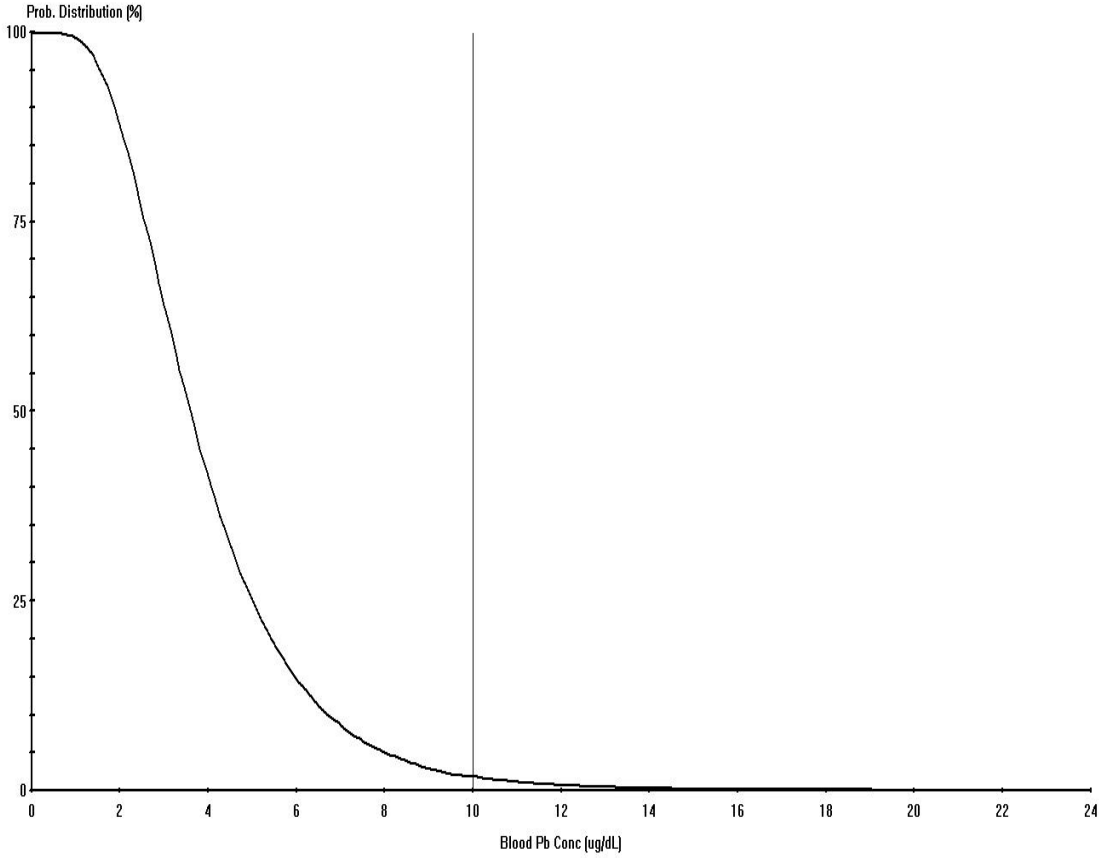
****************************************
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****************************************
```

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.443	0.000	0.198
1-2	0.034	1.174	0.000	0.490
2-3	0.062	1.313	0.000	0.516
3-4	0.067	1.269	0.000	0.533
4-5	0.067	1.239	0.000	0.566
5-6	0.093	1.312	0.000	0.603
6-7	0.093	1.438	0.000	0.616

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	6.287	7.949	4.3
1-2	9.875	11.573	4.8
2-3	10.007	11.899	4.4
3-4	10.133	12.001	4.2
4-5	7.689	9.561	3.4
5-6	6.982	8.990	2.9
6-7	6.624	8.772	2.5



Cutoff = 10.000 ug/dl
Geo Mean = 3.778
GSD = 1.600
% Above = 1.918

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

Table 5c: IEUBK Model for Exposure of Young Child Residents to Soils within RIDEM Soil Removal Area and Groundwater

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 08/20/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment

Diet Data
FDA (2001) data
Water Data
Arithmetic mean of site data
Soil/Dust Data
Arithmetic mean of Nunes Parcel soils data (surface and subsurface)
GSD, Cutoff and Age Type

Soil/Dust Data
Arithmetic mean of samples from RIDEM Soil Removal Area (surface and subsurface)

==========

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

****** Soil & Dust ******

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	2050.000	2050.000
1-2	2050.000	2050.000
2-3	2050.000	2050.000
3-4	2050.000	2050.000
4-5	2050.000	2050.000
5-6	2050.000	2050.000
6-7	2050.000	2050.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

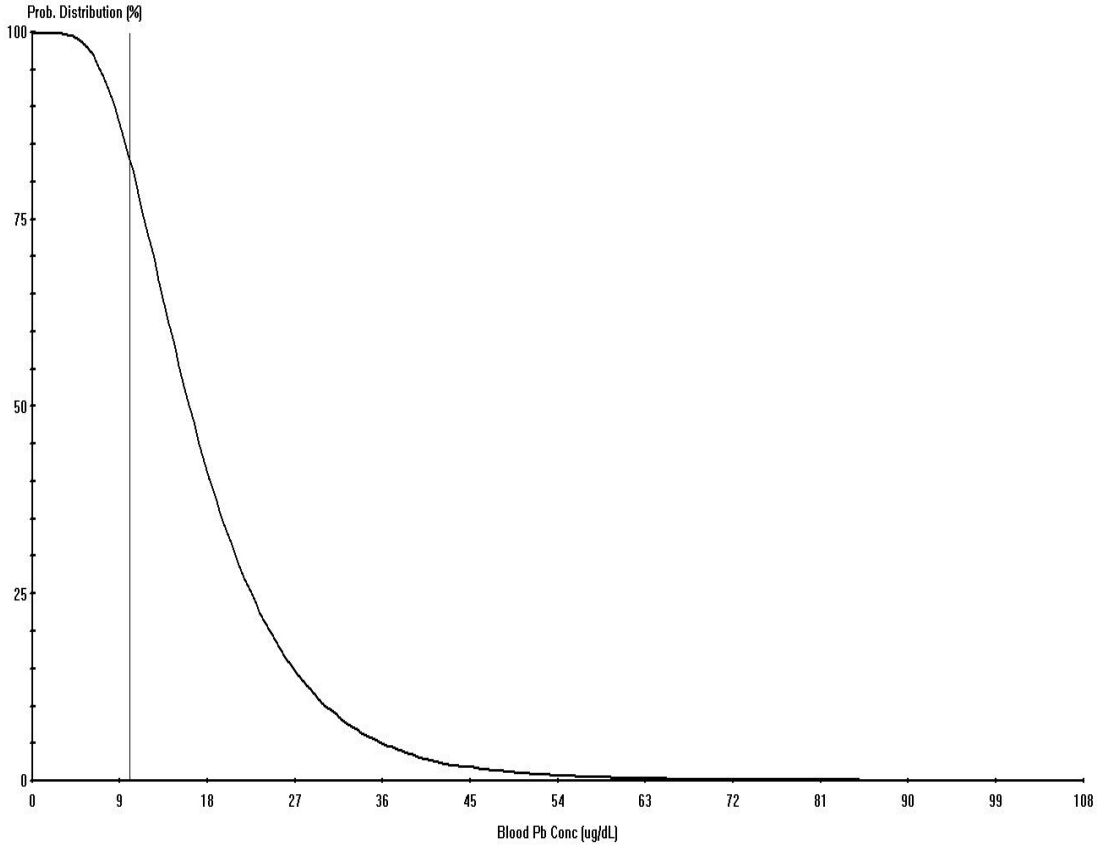
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.036	0.000	0.142
1-2	0.034	0.803	0.000	0.335
2-3	0.062	0.932	0.000	0.366
3-4	0.067	0.932	0.000	0.391
4-5	0.067	0.991	0.000	0.453
5-6	0.093	1.089	0.000	0.500
6-7	0.093	1.219	0.000	0.522

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	34.277	35.476	18.1
1-2	51.291	52.464	20.8
2-3	53.929	55.289	19.8
3-4	56.476	57.866	19.4
4-5	46.726	48.237	16.5
5-6	44.002	45.684	14.2
6-7	42.623	44.457	12.6



Cutoff = 10.000 ug/dl
Geo Mean = 16.974
GSD = 1.600
% Above = 86.985

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

ARCADIS

Attachment A

Table A-1
Samples Used in Lead Modeling
SOUTHERN BANK SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-008-BR / SE-008-BR	54
SE-023-BR / SE-023-BR	13
SE-024-BR / SE-024-BR	51
SE-025-BR / SE-025-BR	57
SE-064-BR / SE-064-BR	48
SE-065-BR / SE-065-BR	7
SE-066-BR / SE-066-BR	11
SE-067-BR / SE-067-BR	5
SE-068-BR / SE-068-BR	24
SE-071-BR / SE-071-BR	19
SE-072-BR / SE-072-BR	12
SE-082-BR / SE-082-BR	41
SE-083-BR / SE-083-BR	47
T05BR-007 / T05BR-007	44
T05PF-004 / T05PF-004	180
Average Concentration:	41

Table A-2
Samples Used in Lead Modeling
SOUTHERN BANK SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SO-064-BR / SO-064-BR	197
SO-065-BR / SO-065-BR	194
SO-066-BR / SO-066-BR	221
SO-067-BR / SO-067-BR	164
SO-068-BR / SO-068-BR	216
SO-069-BR / SO-069-BR	156
SO-070-BR / SO-070-BR	44
SO-071-BR / SO-071-BR	150
Average Concentration:	168

Table A-3
Samples Used in Lead Modeling
NUNES PARCEL SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	239

Note:
NA = Not analyzed

Table A-4
Samples Used in Lead Modeling
DOWNSTREAM OF LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-021-NP / SE-021-NP	155
SE-026-BR / SE-026-BR	26
SE-026-BR / SE-042-BR	12
SE-027-BR / SE-027-BR	207
SE-046-BR / SE-046-BR	10
SE-069-NP / SE-069-NP	227
T05BR-001 / T05BR-001	46
T05BR-003 / T05BR-003	73
T05BR-005 / T05BR-005	190
Average Concentration:	105

Note:
NA = Not analyzed

Table A-5
Samples Used in Lead Modeling
QUINNVILLE WELLFIELD SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LQW-009 / LQW-009 (0-1)	190
LQW-010 / LQW-010 (0-1)	460
LQW-011 / LQW-011	320
LQW-012 / LQW-012 (0-1)	410
LQW-012 / LQW-012B	NA
LQW-013 / LQW-013 (0-1)	190
LQW-014 / LQW-014 (0-1)	100
LQW-015 / LQW-015 (0-1)	16
LQW-015 / LQW-015B	NA
LQW-016 / LQW-016 (0-1)	68
LQW-016 / LQW-016B	NA
LQW-017 / LQW-017 (0-1)	11
LQW-017 / LQW-017B	NA
LQW-018 / LQW-018 (0-1)	27
LQW-018 / LQW-018B	NA
SO-001-BG / SO-001-BG	51
SO-002-BG / SO-002-BG	70
SO-003-BG / SO-003-BG	119
SO-004-BG / SO-004-BG	121
SO-005-BG / SO-005-BG	100
SO-044-QW / SO-044-QW	111
SO-045-QW / SO-045-QW	151
SO-075-QW / SO-075-QW	65
SO-076-QW / SO-076-QW	123
Average Concentration:	142

Note:
NA = Not analyzed

Table A-6
Samples Used in Lead Modeling
UPSTREAM OF LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-032-BR / SE-032-BR	33
SE-048-BR / SE-048-BR	11
SE-051-DF / SE-051-DF	185
Average Concentration:	76

Table A-7
Samples Used in Lead Modeling
NUNES PARCEL SURFACE AND SUBSURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SEA-606 / SSO-SPT8-5-NP	NA
SEA-606 / SSO-SPT8-10-NP	NA
SEA-606 / SSO-SPT8-15-NP	NA
SO-034-NP / SO-W13-NP	433
SO-035-NP / SO-W15-NP	2270
SO-036-NP / SSO-01-NP	51
SO-037-NP / SO-W16-NP	20
SO-100-NP / SO-100-NP (2-7')	51
SO-101-NP / SO-101-NP (2-9')	24
SO-102-NP / SO-102-NP (2-8.5')	410
SO-103-NP / SO-103-NP (2-7')	10
SO-104-NP / SO-104-NP (2-3.4')	34
SO-105-NP / SO-105-NP (2-3.4')	200
SO-106-NP / SO-106-NP (2-5')	24
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	270

Note:
NA = Not analyzed

Table A-8
Samples Used in Lead Modeling
DEBRIS FIELDS SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SO-W07-DF / SO-W07-DF	141
SO-W07x-DF / SO-W07x-DF	NA
SO-W08-DF / SO-W08-DF	104
SO-W08-DF / SO-W08-DFb	NA
SO-046-DF / SO-046-DF	237
SO-047-DF / SO-047-DF	175
SO-048-DF / SO-048-DF	177
SO-049-DF / SO-049-DF	90
Average Concentration:	154

Note:
NA = Not analyzed

Table A-9
Samples Used in Lead Modeling
LANDFILL SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LLF-002 / LLF-002(0-1)	NA
LLF-003 / LLF-003(0-1)	NA
LLF-004 / LLF-004(0-1)	NA
SO-018-LF / SO-018-LF	44
SO-019-LF / SO-019-LF	161
SO-020-LF / SO-020-LF	206
SO-021-LF / SO-021-LF	176
SO-022-LF / SO-022-LF	145
SO-023-LF / SO-023-LF	178
SO-024-LF / SO-024-LF	103
SO-025-LF / SO-025-LF	98
SO-026-LF / SO-026-LF	263
SO-027-LF / SO-027-LF	97
SO-028-LF / SO-028-LF	344
SO-029-LF / SO-029-LF	222
SO-030-LF / SO-030-LF	233
SO-032-LF / SO-032-LF	233
SO-041-LF / SO-041-LF	226
SO-042-LF / SO-042-LF	102
SO-043-LF / SO-043-LF	193
SO-W05-DF / SO-W05-DF	77
SO-W05-DF / SO-W05-DFb	NA
SO-W06-DF / SO-W06-DF	714
SO-W06-DF / SO-W06-DFb	NA
Average Concentration:	201

Note:
NA = Not analyzed

Table A-10
Samples Used in Lead Modeling
ADJACENT TO LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-019-LF / SE-019-LF	172
SE-020-LF / SE-020-LF	201
SE-028-BR / SE-028-BR	8
SE-029-BR / SE-029-BR	19
SE-030-BR / SE-030-BR	16
SE-031-BR / SE-031-BR	13
SE-041-BR / SE-041-BR	12
SE-043-BR / SE-043-BR	9
SE-047-BR / SE-047-BR	20
SE-070-LF / SE-070-LF	148
SE-073-LF / SE-073-LF	206
SE-074-LF / SE-074-LF	145
T05BR-002 / T05BR-002	11
T05BR-004 / T05BR-004	33
T05BR-006 / T05BR-006	52
Average Concentration:	71

Table A-11
Samples Used in Lead Modeling
WETLANDS SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-009-WT / SE-009-WT	17
SE-010-WT / SE-010-WT	362
SE-011-WT / SE-011-WT	74
SE-012-WT / SE-012-WT	83
SE-013-WT / SE-013-WT	26
SE-014-WT / SE-014-WT	98
SE-016-WT / SE-016-WT	30
SE-017-WT / SE-017-WT	48
SE-018-WT / SE-018-WT	52
SE-052-WT / SE-052-WT	7
SE-053-WT / SE-053-WT	59
SE-055-WT / SE-055-WT	29
SE-057-WT / SE-057-WT	76
SE-058-WT / SE-058-WT	21
SE-059-WT / SE-059-WT	46
SE-060-WT / SE-060-WT	80
SE-061-WT / SE-061-WT	43
SE-062-WT / SE-062-WT	127
SE-063-WT / SE-063-WT	88
T05WB-001 / T05WB-001	27
T05WB-002 / T05WB-002	160
T05WD-003 / T05WD-003	18
Average Concentration:	71

Table A-12
Samples Used in Lead Modeling
OU2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR3-FI-1 / BR3-FI-1-FILL	0.007
BR3-FI-2 / BR3-FI-2-FILL	0.007
BR3-FI-3 / BR3-FI-3-FILL	0.0065
BR3-FI-4 / BR3-FI-4-FILL	0.0075
BR3-FI-5 / BR3-FI-5-FILL	0.007
BR3-FI-6 / BR3-FI-6-FILL	0.0065
BR3-FI-7 / BR3-FI-7-FILL	0.0065
BR3-FI-8 / BR3-FI-8-FILL	0.0065
BR3-FI-9 / BR3-FI-9-FILL	0.0065
BR3-FI-10 / BR3-FI-10-FILL	0.0075
BR3-FI-11 / BR3-FI-11-FILL	0.0065
BR3-FI-12 / BR3-FI-12-FILL	0.007
BR3-FI-13 / BR3-FI-13-FILL	0.007
BR3-FI-14 / BR3-FI-14-FILL	0.008
BR3-FI-15 / BR3-FI-15-FILL	0.006
BR3-FI-16 / BR3-FI-16-FILL	0.007
P1-FI-25 / P1-FI-25-FILL	0.0085
P1-FI-26 / P1-FI-26-FILL	0.0095
P1-FI-27 / P1-FI-27-FILL	0.009
P1-FI-28 / P1-FI-28-FILL	0.0085
P1-FI-29 / P1-FI-29-FILL	0.0095
P1-FI-30 / P1-FI-30-FILL	0.01
P1-FI-31 / P1-FI-31-FILL	0.0095
P1-FI-32 / P1-FI-32-FILL	0.0085
P1-FI-33 / P1-FI-33-FILL	0.0085
P1-FI-34 / P1-FI-34-FILL	0.0095
P1-FI-35 / P1-FI-35-FILL	0.0095
P1-FI-36 / P1-FI-36-FILL	0.0095
P1-FI-37 / P1-FI-37-FILL	0.009
P1-FI-38 / P1-FI-38-FILL	0.009
P1-FI-39 / P1-FI-39-FILL	0.2
P1-FI-40 / P1-FI-40-FILL	0.037
P2-FI-49 / P2-FI-49-FILL	0.007
P2-FI-50 / P2-FI-50-FILL	0.007
P2-FI-51 / P2-FI-51-FILL	0.0065
P2-FI-52 / P2-FI-52-FILL	0.007
P2-FI-53 / P2-FI-53-FILL	0.0065
P2-FI-54 / P2-FI-54-FILL	0.0065
P2-FI-55 / P2-FI-55-FILL	0.0065
P2-FI-56 / P2-FI-56-FILL	0.016
P2-FI-57 / P2-FI-57-FILL	0.007
P2-FI-58 / P2-FI-58-FILL	0.0065
P2-FI-59 / P2-FI-59-FILL	0.0065
P2-FI-60 / P2-FI-60-FILL	0.0065
P2-FI-61 / P2-FI-61-FILL	0.0065
P2-FI-62 / P2-FI-62-FILL	0.0065
P2-FI-63 / P2-FI-63-FILL	0.0065
P2-FI-64 / P2-FI-64-FILL	0.007
Average Concentration:	0.012

Table A-13
Samples Used in Lead Modeling
BR1 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR1-FI-113 / BR1-FI-113-FILL	0.011
BR1-FI-114 / BR1-FI-114-FILL	0.0125
BR1-FI-115 / BR1-FI-115-FILL	0.011
BR1-FI-116 / BR1-FI-116-FILL	0.01
BR1-FI-117 / BR1-FI-117-FILL	0.0125
BR1-FI-118 / BR1-FI-118-FILL	0.01
BR1-FI-119 / BR1-FI-119-FILL	0.0115
BR1-FI-120 / BR1-FI-120-FILL	0.024
BR1-FI-121 / BR1-FI-121-FILL	0.0105
BR1-FI-122 / BR1-FI-122-FILL	0.011
BR1-FI-123 / BR1-FI-123-FILL	0.0125
BR1-FI-124 / BR1-FI-124-FILL	0.012
BR1-FI-125 / BR1-FI-125-FILL	0.011
BR1-FI-126 / BR1-FI-126-FILL	0.029
BR1-FI-127 / BR1-FI-127-FILL	0.009
BR1-FI-128 / BR1-FI-128-FILL	0.0095
Average Concentration:	0.013

Table A-14
Samples Used in Lead Modeling
BR2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR2-FI-73 / BR2-FI-73-FILL	0.005
BR2-FI-74 / BR2-FI-74-FILL	0.005
BR2-FI-75 / BR2-FI-75-FILL	0.005
BR2-FI-76 / BR2-FI-76-FILL	0.0055
BR2-FI-77 / BR2-FI-77-FILL	0.0055
BR2-FI-78 / BR2-FI-78-FILL	0.005
BR2-FI-79 / BR2-FI-79-FILL	0.0055
BR2-FI-80 / BR2-FI-80-FILL	0.006
BR2-FI-81 / BR2-FI-81-FILL	0.0055
BR2-FI-82 / BR2-FI-82-FILL	0.0055
BR2-FI-83 / BR2-FI-83-FILL	0.01
BR2-FI-84 / BR2-FI-84-FILL	0.0055
BR2-FI-85 / BR2-FI-85-FILL	0.005
BR2-FI-86 / BR2-FI-86-FILL	0.005
BR2-FI-87 / BR2-FI-87-FILL	0.0055
BR2-FI-88 / BR2-FI-88-FILL	0.005
Average Concentration:	0.0056

Table A-15
Samples Used in Lead Modeling
SITE-WIDE SHALLOW GROUNDWATER

Location ID / Sample ID	Pb Concentration (ug/L)
GLF-704 / GLF-704	0.62
GLF-706 / GLF-706	5.1
GNP-705 / GNP-705	13
GNP-708 / GNP-708	1.2
GUI-701 / GUI-701	0.38
GUI-702 / GUI-702	0.2
GUI-703 / GUI-703	1.2
GZ-4-1 / GW-013-QW	7.5
GZ-4-1 / GW-079-QW	79.3
MW-108AA / GW-011-LF	0.86
MW-108AA / MW-108AA	0.27
MW-109AA / GW-003-LF	0.81
MW-109AA / GW-048-LF	1.5
MW-111AA / GW-015-WT	0.92
MW-111AA / GW-052-WT	1.5
MW-112AA / GW-020-NP	0.35
MW-112AA / GW-056-NP	1.5
MW-112AA / MW-112AA	0.24
MW-A2 / GW-012-QW	7.5
MW-A2 / GW-080-QW	1.5
MW-A2 / MW-A2	0.34
MW-B2 / GW-002-LF	0.35
MW-B2 / GW-066-LF	1.5
MW-C2 / GW-006-LF	0.35
MW-C2 / GW-071-LF	1.5
MW-C2 / MW-C2	1.1
P-7 / GW-014-LF	0.35
P-7 / GW-059-LF	1.5
P-8 / GW-018-LF	1
P-8 / GW-063-LF	1.5
SEA-601 / GW-017-LF	0.35
SEA-601 / GW-060-LF	1.5
SEA-602A / GW-022-LF	0.35
SEA-602A / GW-062-LF	1.5
SEA-602a / SEA-602a	0.4
SEA-603 / GW-021-LF	0.35
SEA-603 / GW-064-LF	1.5
SEA-603 / SEA-603	1.5
SEA-604 / GW-027-LF	0.35
SEA-604 / GW-067-LF	1.5
SEA-605 / GW-028-LF	0.35
SEA-605 / GW-068-LF	1.5
SEA-605 / SEA-605	1
SEA-606 / GW-024-NP	0.35
SEA-606 / GW-069-NP	1.5
SEA-606 / SEA-606	0.26
SEA-607 / GW-025-UI	0.35
SEA-607 / GW-072-UI	1.5
SEA-608 / GW-026-UI	0.35
SEA-608 / GW-073-UI	1.5
SEA-608 / SEA-608	0.28
Average Concentration:	3.00

Table A-16
Samples Used in Lead Modeling
RIDEM SOIL REMOVAL AREA OF NUNES PARCEL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-033-NP / SO-W14-NP	1 - 5	5460
SO-107-NP / SO-107-NP (0-1')	0 - 1	1200
SO-107-NP / SO-107-NP (2-10')	2 - 10	10
SO-108-NP / SO-108-NP (3-8')	3 - 8	1200
SO-033-NP / SO-033-NP	0 - 1	2380

Surface Soil Average Concentration: 1790
Surface + Subsurface Soil Average Concentration: 2050

ARCADIS

Attachment B

Table B-1
Samples Used in Lead Modeling
Site-Wide Groundwater

Location ID / Sample ID	Pb Concentration (ug/L)
GLF-700a / GLF-700a	2
GLF-704 / GLF-704	0.62
GLF-706 / GLF-706	5.1
GLF-706a / GLF-706a	1.2
GNP-705 / GNP-705	13
GNP-705B / GNP-705B	0.24
GNP-707 / GNP-707	0.05
GNP-708 / GNP-708	1.2
GNP-708A / GNP-708A	0.2
GUI-701 / GUI-701	0.38
GUI-702 / GUI-702	0.2
GUI-703 / GUI-703	1.2
GZ-4-1 / GW-013-QW	7.5
GZ-4-1 / GW-079-QW	79.3
MW-106A / GW-009-DF	0.98
MW-106A / GW-074-DF	1.5
MW-106A / MW-106A	0.34
MW-106B / GW-078-DF	1.5
MW-106B / MW-106B	3.6
MW-106C / GW-077-DF	1.5
MW-106C / MW-106C	0.05
MW-108A / GW-010-LF	1.2
MW-108A / GW-046-LF	1.5
MW-108AA / GW-011-LF	0.86
MW-108AA / MW-108AA	0.27
MW-108B / GW-043-LF	1.5
MW-108C / GW-058-LF	1.5
MW-109A / GW-001-LF	0.35
MW-109A / GW-047-LF	1.5
MW-109AA / GW-003-LF	0.81
MW-109AA / GW-048-LF	1.5
MW-109B / GW-042-LF	1.5
MW-109C / GW-041-LF	1.5
MW-110A / GW-004-WT	0.35
MW-110A / GW-045-WT	1.5
MW-110B / GW-005-WT	1.15
MW-110B / GW-044-WT	1.5
MW-110C / GW-053-WT	1.5
MW-111A / GW-016-WT	2.6
MW-111A / GW-051-WT	1.5
MW-111AA / GW-015-WT	0.92
MW-111AA / GW-052-WT	1.5
MW-111B / GW-050-WT	5.8
MW-111C / GW-057-WT	1.5
MW-112A / GW-019-NP	0.72
MW-112A / GW-055-NP	1.5
MW-112A / MW-112A	0.18
MW-112AA / GW-020-NP	0.35
MW-112AA / GW-056-NP	1.5
MW-112AA / MW-112AA	0.24
MW-112B / GW-054-NP	1.5
MW-112B / MW-112B	1.2
MW-112C / GW-049-NP	1.5

Table B-1
Samples Used in Lead Modeling
Site-Wide Groundwater

Location ID / Sample ID	Pb Concentration (ug/L)
MW-112C / MW-112C	0.21
MW-502 / MW-502	0.17
MW-A2 / GW-012-QW	7.5
MW-A2 / GW-080-QW	1.5
MW-A2 / MW-A2	0.34
MW-B1 / GW-008-LF	7.5
MW-B1 / GW-065-LF	3.9
MW-B2 / GW-002-LF	0.35
MW-B2 / GW-066-LF	1.5
MW-C1 / GW-007-LF	0.85
MW-C1 / GW-070-LF	1.5
MW-C1 / MW-C1	0.4
MW-C2 / GW-006-LF	0.35
MW-C2 / GW-071-LF	1.5
MW-C2 / MW-C2	1.1
MW-EA-1 / GW-075-WT	1.5
MW-EA-1 / MW-EAI	0.22
MW-EA-3 / GW-076-WT	1.5
P-7 / GW-014-LF	0.35
P-7 / GW-059-LF	1.5
P-8 / GW-018-LF	1
P-8 / GW-063-LF	1.5
SEA-601 / GW-017-LF	0.35
SEA-601 / GW-060-LF	1.5
SEA-602A / GW-022-LF	0.35
SEA-602A / GW-062-LF	1.5
SEA-602a / SEA-602a	0.4
SEA-602B / GW-023-LF	0.35
SEA-602B / GW-061-LF	1.5
SEA-603 / GW-021-LF	0.35
SEA-603 / GW-064-LF	1.5
SEA-603 / SEA-603	1.5
SEA-604 / GW-027-LF	0.35
SEA-604 / GW-067-LF	1.5
SEA-605 / GW-028-LF	0.35
SEA-605 / GW-068-LF	1.5
SEA-605 / SEA-605	1
SEA-606 / GW-024-NP	0.35
SEA-606 / GW-069-NP	1.5
SEA-606 / SEA-606	0.26
SEA-607 / GW-025-UI	0.35
SEA-607 / GW-072-UI	1.5
SEA-608 / GW-026-UI	0.35
SEA-608 / GW-073-UI	1.5
SEA-608 / SEA-608	0.28
Average Concentration:	2.2

Table B-2
Samples Used in Lead Modeling
OU2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR3-FI-1 / BR3-FI-1-FILL	0.007
BR3-FI-2 / BR3-FI-2-FILL	0.007
BR3-FI-3 / BR3-FI-3-FILL	0.0065
BR3-FI-4 / BR3-FI-4-FILL	0.0075
BR3-FI-5 / BR3-FI-5-FILL	0.007
BR3-FI-6 / BR3-FI-6-FILL	0.0065
BR3-FI-7 / BR3-FI-7-FILL	0.0065
BR3-FI-8 / BR3-FI-8-FILL	0.0065
BR3-FI-9 / BR3-FI-9-FILL	0.0065
BR3-FI-10 / BR3-FI-10-FILL	0.0075
BR3-FI-11 / BR3-FI-11-FILL	0.0065
BR3-FI-12 / BR3-FI-12-FILL	0.007
BR3-FI-13 / BR3-FI-13-FILL	0.007
BR3-FI-14 / BR3-FI-14-FILL	0.008
BR3-FI-15 / BR3-FI-15-FILL	0.006
BR3-FI-16 / BR3-FI-16-FILL	0.007
P1-FI-25 / P1-FI-25-FILL	0.0085
P1-FI-26 / P1-FI-26-FILL	0.0095
P1-FI-27 / P1-FI-27-FILL	0.009
P1-FI-28 / P1-FI-28-FILL	0.0085
P1-FI-29 / P1-FI-29-FILL	0.0095
P1-FI-30 / P1-FI-30-FILL	0.01
P1-FI-31 / P1-FI-31-FILL	0.0095
P1-FI-32 / P1-FI-32-FILL	0.0085
P1-FI-33 / P1-FI-33-FILL	0.0085
P1-FI-34 / P1-FI-34-FILL	0.0095
P1-FI-35 / P1-FI-35-FILL	0.0095
P1-FI-36 / P1-FI-36-FILL	0.0095
P1-FI-37 / P1-FI-37-FILL	0.009
P1-FI-38 / P1-FI-38-FILL	0.009
P1-FI-39 / P1-FI-39-FILL	0.2
P1-FI-40 / P1-FI-40-FILL	0.037
P2-FI-49 / P2-FI-49-FILL	0.007
P2-FI-50 / P2-FI-50-FILL	0.007
P2-FI-51 / P2-FI-51-FILL	0.0065
P2-FI-52 / P2-FI-52-FILL	0.007
P2-FI-53 / P2-FI-53-FILL	0.0065
P2-FI-54 / P2-FI-54-FILL	0.0065
P2-FI-55 / P2-FI-55-FILL	0.0065
P2-FI-56 / P2-FI-56-FILL	0.016
P2-FI-57 / P2-FI-57-FILL	0.007
P2-FI-58 / P2-FI-58-FILL	0.0065
P2-FI-59 / P2-FI-59-FILL	0.0065
P2-FI-60 / P2-FI-60-FILL	0.0065
P2-FI-61 / P2-FI-61-FILL	0.0065
P2-FI-62 / P2-FI-62-FILL	0.0065
P2-FI-63 / P2-FI-63-FILL	0.0065
P2-FI-64 / P2-FI-64-FILL	0.007
Average Concentration:	0.012

Table B-3
Samples Used in Lead Modeling
BR1 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR1-FI-113 / BR1-FI-113-FILL	0.011
BR1-FI-114 / BR1-FI-114-FILL	0.0125
BR1-FI-115 / BR1-FI-115-FILL	0.011
BR1-FI-116 / BR1-FI-116-FILL	0.01
BR1-FI-117 / BR1-FI-117-FILL	0.0125
BR1-FI-118 / BR1-FI-118-FILL	0.01
BR1-FI-119 / BR1-FI-119-FILL	0.0115
BR1-FI-120 / BR1-FI-120-FILL	0.024
BR1-FI-121 / BR1-FI-121-FILL	0.0105
BR1-FI-122 / BR1-FI-122-FILL	0.011
BR1-FI-123 / BR1-FI-123-FILL	0.0125
BR1-FI-124 / BR1-FI-124-FILL	0.012
BR1-FI-125 / BR1-FI-125-FILL	0.011
BR1-FI-126 / BR1-FI-126-FILL	0.029
BR1-FI-127 / BR1-FI-127-FILL	0.009
BR1-FI-128 / BR1-FI-128-FILL	0.0095
Average Concentration:	0.013

Table B-4
Samples Used in Lead Modeling
BR2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR2-FI-73 / BR2-FI-73-FILL	0.005
BR2-FI-74 / BR2-FI-74-FILL	0.005
BR2-FI-75 / BR2-FI-75-FILL	0.005
BR2-FI-76 / BR2-FI-76-FILL	0.0055
BR2-FI-77 / BR2-FI-77-FILL	0.0055
BR2-FI-78 / BR2-FI-78-FILL	0.005
BR2-FI-79 / BR2-FI-79-FILL	0.0055
BR2-FI-80 / BR2-FI-80-FILL	0.006
BR2-FI-81 / BR2-FI-81-FILL	0.0055
BR2-FI-82 / BR2-FI-82-FILL	0.0055
BR2-FI-83 / BR2-FI-83-FILL	0.01
BR2-FI-84 / BR2-FI-84-FILL	0.0055
BR2-FI-85 / BR2-FI-85-FILL	0.005
BR2-FI-86 / BR2-FI-86-FILL	0.005
BR2-FI-87 / BR2-FI-87-FILL	0.0055
BR2-FI-88 / BR2-FI-88-FILL	0.005
Average Concentration:	0.0056

Table B-5
Samples Used in Lead Modeling
NUNES PARCEL SURFACE AND SUBSURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SEA-606 / SSO-SPT8-5-NP	NA
SEA-606 / SSO-SPT8-10-NP	NA
SEA-606 / SSO-SPT8-15-NP	NA
SO-034-NP / SO-W13-NP	433
SO-035-NP / SO-W15-NP	2270
SO-036-NP / SSO-01-NP	51
SO-037-NP / SO-W16-NP	20
SO-100-NP / SO-100-NP (2-7')	51
SO-101-NP / SO-101-NP (2-9')	24
SO-102-NP / SO-102-NP (2-8.5')	410
SO-103-NP / SO-103-NP (2-7')	10
SO-104-NP / SO-104-NP (2-3.4')	34
SO-105-NP / SO-105-NP (2-3.4')	200
SO-106-NP / SO-106-NP (2-5')	24
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	270

Note:
NA = Not analyzed

Table B-6
Samples Used in Lead Modeling
RIDEM SOIL REMOVAL AREA OF NUNES PARCEL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-033-NP / SO-W14-NP	1 - 5	5460
SO-107-NP / SO-107-NP (0-1')	0 - 1	1200
SO-107-NP / SO-107-NP (2-10')	2 - 10	10
SO-108-NP / SO-108-NP (3-8')	3 - 8	1200
SO-033-NP / SO-033-NP	0 - 1	2380

Surface + Subsurface Soil Average Concentration: 2050

Table B-7
Samples Used in Lead Modeling
MACKLAND FARMS SOIL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-072-MF	0 - 1	161
SO-073-MF	0 - 1	82.6
SO-074-MF	0 - 1	60

Average Concentration: 101